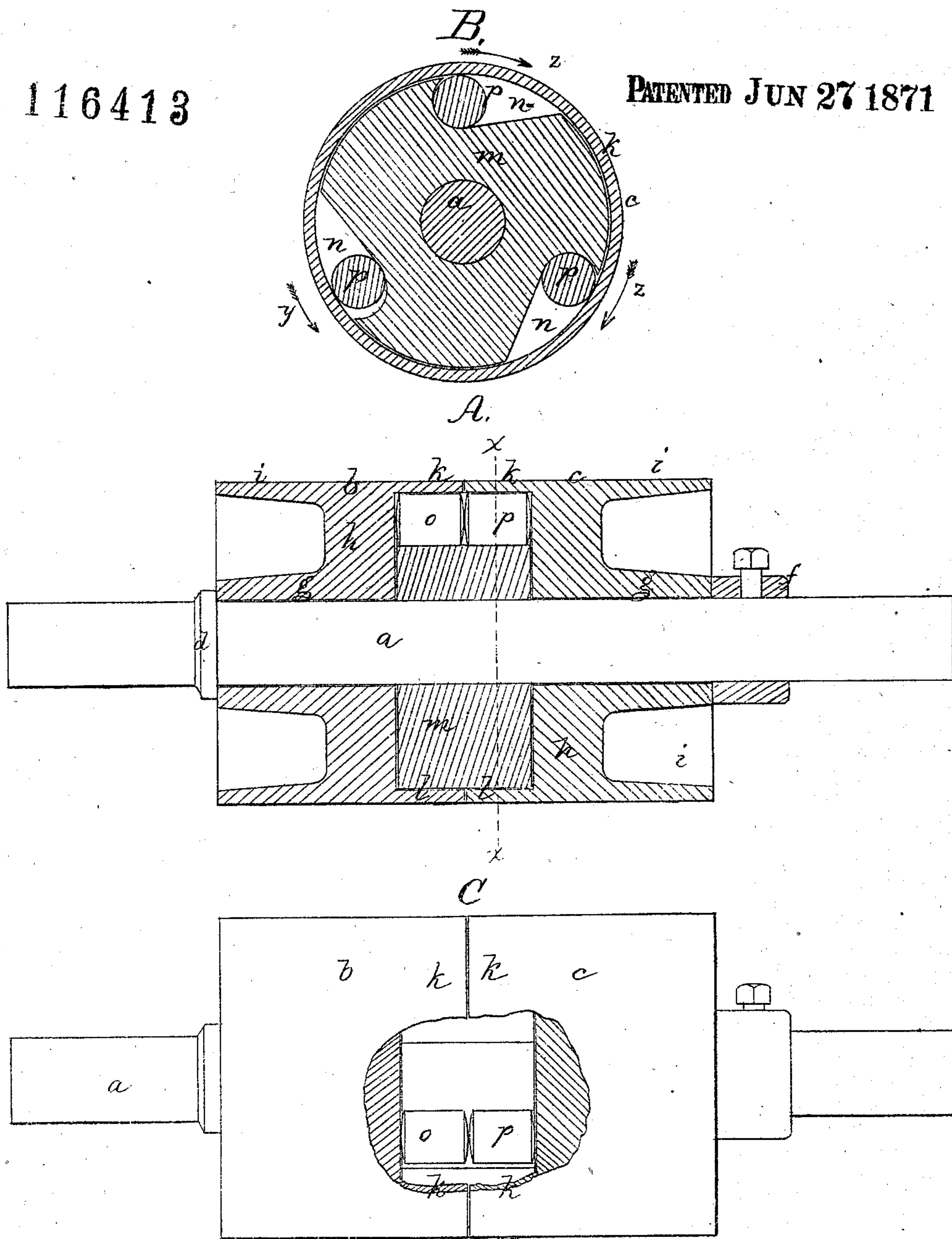


Walter R. Close.
Imp'd Friction Pawl or Clutch Mechanism.

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PATENTED JUN 27 1871



Witnesses
 P. B. Hadden
 M. W. Frothingham.

Walter R. Close
 by his Attys.
 Crosby & Gould.

UNITED STATES PATENT OFFICE.

WALTER R. CLOSE, OF BANGOR, MAINE, ASSIGNOR TO HIMSELF, JOHN E. M. SANFORD, EMON C. SMART, JOB COLLETT, REUEL W. KIMBALL, WILLIAM MARGESSON & SON, AND FREDERICK H. COOMBS, OF SAME PLACE.

IMPROVEMENT IN FRICTION-PAWL OR CLUTCH MECHANISMS.

Specification forming part of Letters Patent No. 116,413, dated June 27, 1871.

To all whom it may concern:

Be it known that I, WALTER R. CLOSE, of Bangor, in the county of Penobscot and State of Maine, have invented an Improved Friction-Pawl or Clutch Mechanism; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to an improved construction of a friction feed mechanism, particularly intended for imparting rotative movement to a shaft from a treadle; and the invention may be said to consist of two pulleys placed together on the shaft to be driven, and each loose upon the shaft, but clutched or held thereto in moving in one direction by a peculiar friction-pawl or clutch mechanism, which mechanism is boxed up or inclosed between and by inwardly-projecting peripheral flanges of the two pulleys. Fixed on the shaft between the pulleys is a clutch-wheel, in the perimeter of which are inclines or pockets in which are friction-rolls, one set to each pulley, each roll of either set being kept at the large end or bottom of the pocket as its pulley rotates in one direction, and being then in such position that the wheel and the pulley can have free relative rotation, while, when either pulley rotates in the opposite direction, each roll within it starts along the incline until it cramps or binds between the pulley-shell and the incline, when the wheel (with the shaft) and the pulley and roll will all rotate together or as one piece. It is in such a friction-pawl or clutch mechanism, cased in between and by the pulleys, that my invention consists.

The drawing represents a shaft and pulley mechanism embodying the invention. A shows a diametric section; B, a section on the line xx ; C, an elevation, with the pulley-flanges or shells broken out to show the rolls within.

a denotes the shaft; $b\ c$, the two pulleys, loose upon the shaft, and confined (from end play) between a shoulder, d , of the shaft and a collar, f , fixed on the shaft. Each pulley is formed with a hub, g , a web, h , and an outwardly-projecting flange, i ; and from each web h extends an inwardly-projecting peripheral flange, k , the two flanges $k\ k$ meeting or nearly meeting, and forming a case or shell, l , as seen at A. Fixed on the shaft, between the two hubs or webs of the pulleys, (or

within the case l ,) is a wheel, m , the periphery of which extends nearly to the flanges k , as seen at B. The periphery of the wheel is cut away or recessed at three or any other suitable number of points so as to form pockets n , in each of which are two rolls, $o\ p$, one for each pulley, each pocket being so formed that when the roll is at one end of it it is slightly below the flange k , or so that in the rotation of the pulley in the direction of the arrow z the pulley-flange slides over the rolls. From this large end of the recess the bottom of each pocket inclines to the periphery of the wheel, as seen at B, or so that, as the wheel rotates in the direction of the arrow y , the roll is moved and becomes cramped between the flange and the incline, clutching the pulley and wheel together, so that they move as one.

Two pulleys, each with a set of friction-rolls acting in one direction of rotation of the pulley, and inactive in the opposite direction of rotation thereof, are employed, so that by means of a treadle and a pair of straps a continuous rotative movement may be imparted to the shaft, one strap passing around one pulley in one direction and driving it in one direction, while the other strap, passing around the other pulley in the opposite direction, drives it in the opposite direction, so that at each movement up or down of the treadle-lever the shaft is rotated by one of the pulleys, the rolls of the other pulley during such rotation being kept in the ends of their pockets and permitting the pulley to rotate loosely upon the wheel.

By constructing the pulleys as described, or so as to incase the clutch-wheel m and the rolls $o\ p$, the friction-pawl mechanism is kept concealed, and the rolls have the requisite freedom of movement without possibility of displacement.

I claim—

The combination, with the shaft a , of the pulleys $b\ c$ loose thereupon, the clutch-wheel m fast thereupon, and the rolls $o\ p$ located in peripheral recesses of the clutch-wheel, the two pulleys having flanges $k\ k$, which inclose the clutch-wheel and the rolls, and each pocket or recess having two rolls, one for each pulley, all substantially as shown and described.

WALTER R. CLOSE.

Witnesses:

F. A. WILSON,
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