

No. 611,549.

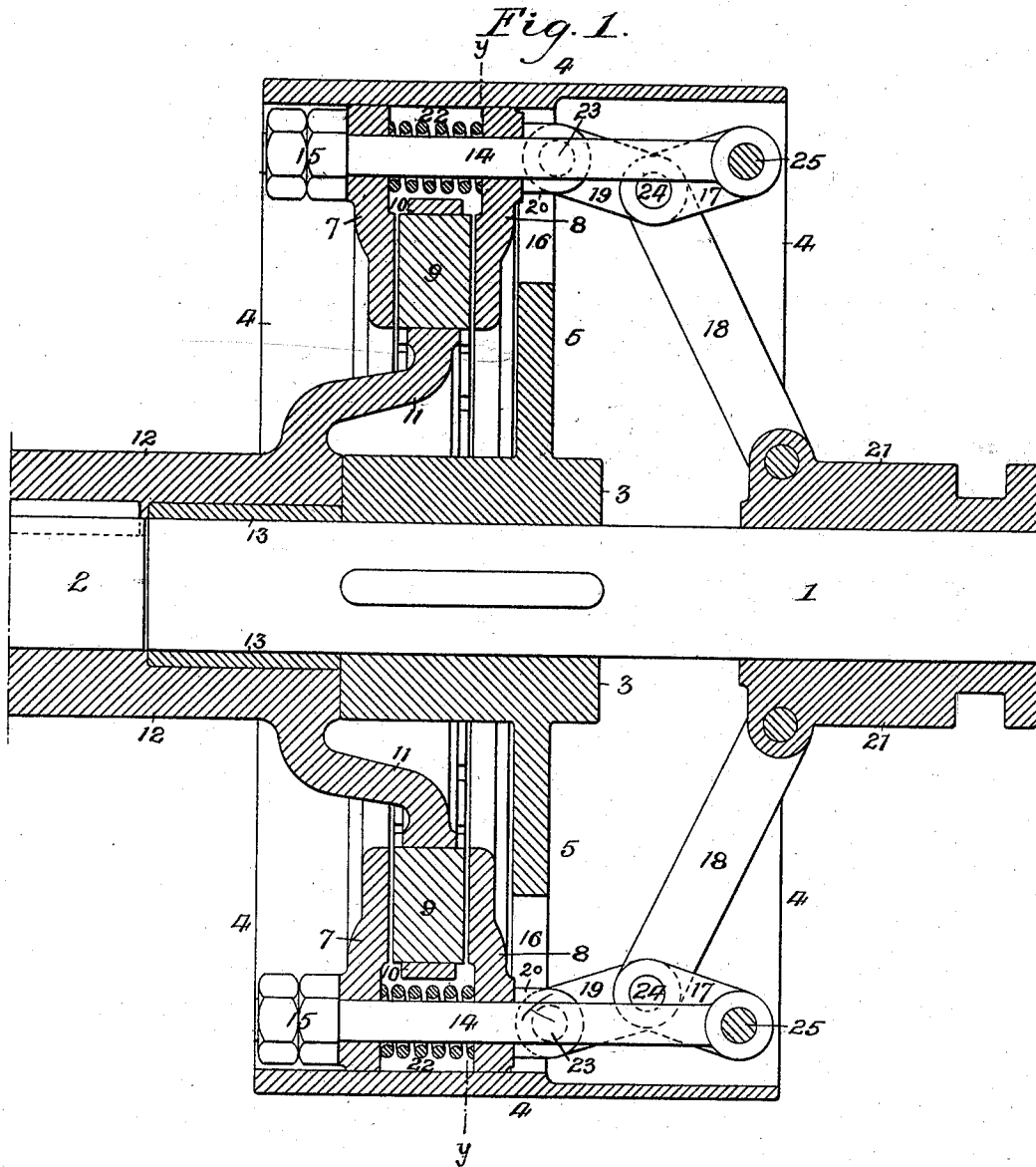
G. E. ANDERSON.
CLUTCH.

Patented Sept. 27, 1898.

(Application filed Oct. 4, 1897.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:
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F. E. Bechtold

Inventor
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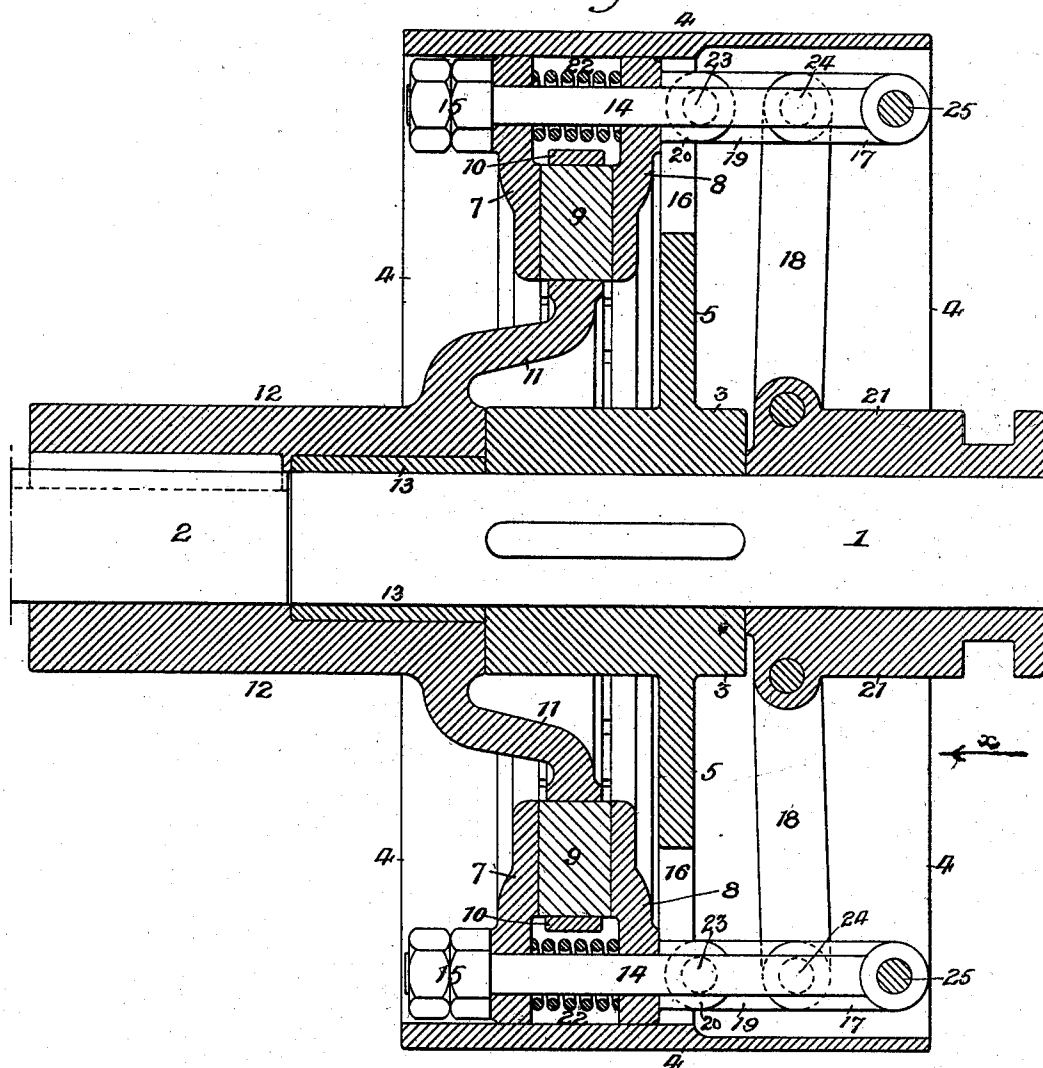
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Fig. 2.



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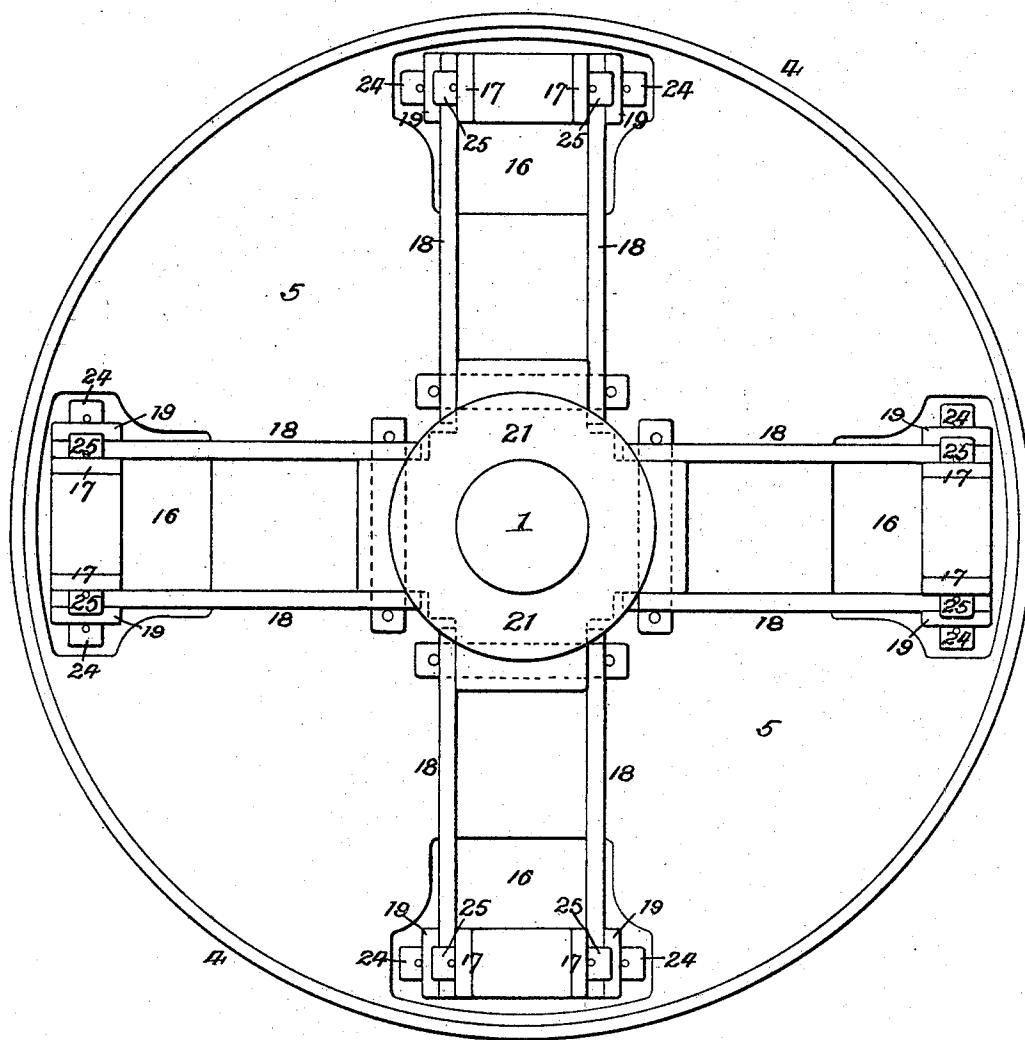
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Fig. 3.



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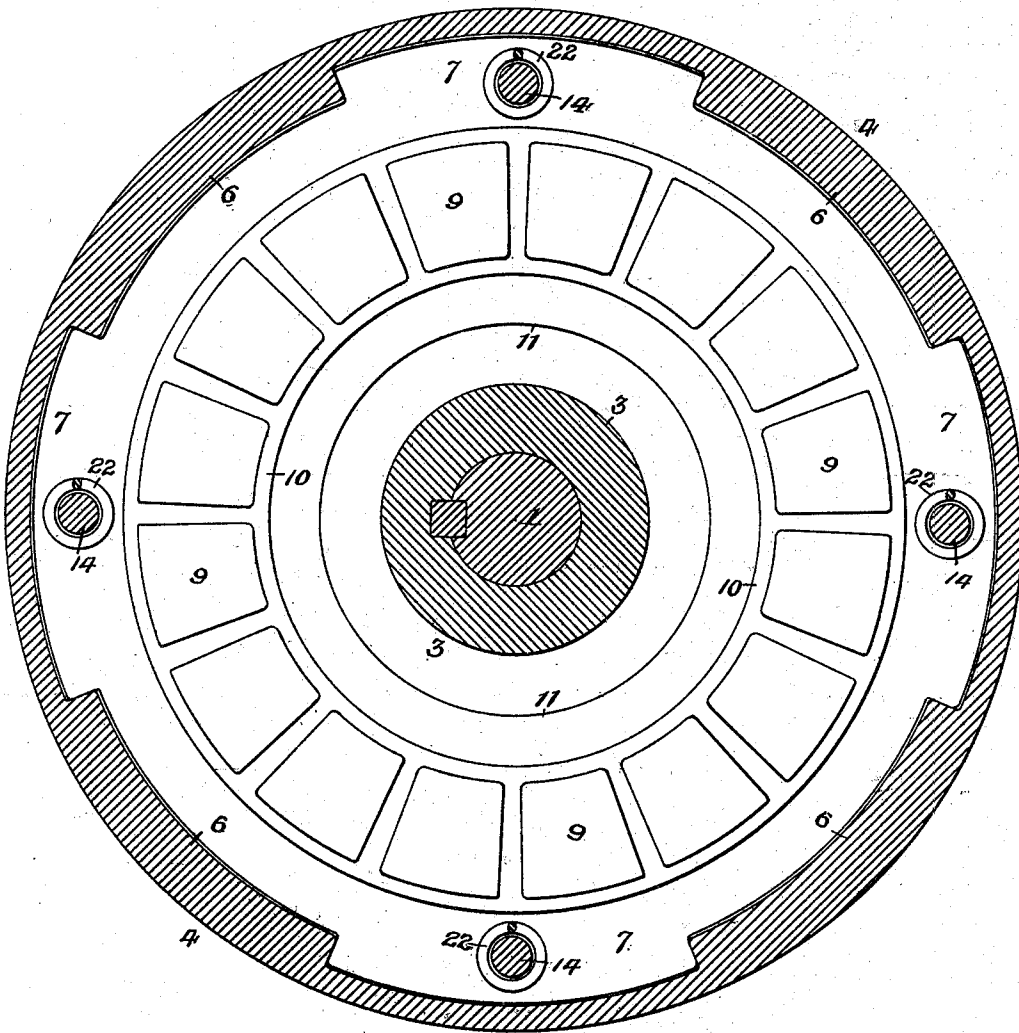
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4 Sheets—Sheet 4.

Fig. 4.



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UNITED STATES PATENT OFFICE.

GUSTAVE E. ANDERSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO THE FAIRMOUNT MACHINE COMPANY, OF SAME PLACE.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 611,549, dated September 27, 1898.

Application filed October 4, 1897. Serial No. 653,955. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE E. ANDERSON, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Clutches, of which the following is a specification.

The object of my invention is to provide a compact yet extremely powerful friction-clutch or shaft-coupling, an object which I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of the device employed as a shaft-coupling and showing the parts in the inoperative position. Fig. 2 is a similar view showing the parts in operative or clutching position. Fig. 3 is an end view of the clutch looking in the direction of the arrow *x*, Fig. 2; and Fig. 4 is a transverse section on the line *y y*, Fig. 1, also looking in the direction of the arrow *x*, Fig. 2.

1 and 2 represent a pair of shafts in line with each other and which may be clutched to or released from each other by the device forming the subject of my invention.

To the shaft 1 is keyed or otherwise suitably secured the hub 3 of a wheel or pulley 4, which may, as shown in the drawings, be a belt-pulley, or it may be a spur or other gear wheel to which power is applied or from which power is to be transmitted, or, on the other hand, the rim 4 may be simply a flange upon the web 5, which projects from the hub 3, and may be used simply as a means of transmitting power to or from the other parts of the clutch with which it is in engagement.

On the inner side of the rim 4 are a series of lugs or projections 6, as shown in Fig. 4, which lugs or projections enter corresponding recesses in the peripheries of a pair of rings 7 and 8, which fit within the rim 4 and are adapted to bear upon the opposite faces of blocks 9, of wood or other frictional material, contained in openings in a flange 10, which is connected by a web 11 to a hub 12, keyed or otherwise secured to the shaft 2 and overlapping the end of the shaft 1, so as to maintain the two shafts in proper alignment, the overhanging portion of the hub 12 being provided with a bushing 13 of anti-friction metal.

Through the pairs of rings 7 and 8 pass a series of bolts 14, four in the present instance, each of these bolts having at one end a pair of nuts 15, the innermost of which presses against the ring 7. The other end of each bolt 14 projects beyond the ring 8 and through one of the openings 16 in the web 5 and is connected to the outer ends of a pair of links 17, the inner ends of which are connected to the outer ends of a pair of radial links 18 and also to the outer ends of a pair of longitudinal links 19, which are pivoted to brackets 20, projecting from the ring 8 and contained in said opening 16 of the web 5.

The inner ends of the radial links 18 are pivoted to a sliding sleeve 21, which is grooved in the usual manner for the reception of the forked end of a lever or other equivalent operating device, so that it can be moved longitudinally on the shaft 1.

Between the rings 7 and 8 and surrounding each of the bolts 14 is a coiled spring 22, the tendency of this spring being to force the rings 7 and 8 apart, so as to free them from contact with the blocks 9.

When the sliding sleeve 21 is moved outward, as shown in Fig. 1, the connected ends of the longitudinal links 17 and 19 are drawn toward the shaft 1, so that the springs 22 can force the rings 7 and 8 out of contact with the blocks 9, thereby permitting said rings to rotate without imparting motion to the flange 10, and thence to the hub 12 and shaft 2, or, on the other hand, permitting the flange 10 to rotate without imparting movement to the rings 7 and 8. When the sliding sleeve 21, however, is moved inwardly, the connected ends of the links 17 and 19 are forced outwardly, thereby straightening said links and imparting such longitudinal pull to the bolts 14 as to force the rings 7 and 8 into intimate frictional contact with the projecting faces of the blocks 9, thereby imparting the rotative movement of the rings to said blocks and to the flange 10 or transmitting the rotative movement of said flange and its blocks to the rings and to the parts which are operatively connected therewith. When the sleeve 21 is moved fully inward, the axes of the pivot-pins which connect the links 18 to said sleeve are preferably slightly inward beyond the

line at right angles to lines drawn through the pivot-pins 23, 24, and 25. Hence the sleeve 21 has a tendency to constantly maintain its inward position and cannot be moved outwardly therefrom without the exercise of more force than is likely to be accidentally exerted, thereby preventing the possibility of any accidental release of the clutch.

As the blocks 9 or rings 7 and 8 wear this wear can be compensated for by adjusting the nuts 15 on the bolts 14, and when the blocks 9 become so worn as to be incapable of properly performing their intended functions they can be readily removed from the openings in the flange 10 and new blocks inserted in place of the same.

A clutch of the character described can be very cheaply manufactured, as it is composed of castings and ordinary commercial bolts, nuts, pins, and springs, very little machine-work being necessary in order to fit the parts for proper assemblage.

It will be evident that although I have described my invention as a shaft-coupling it can be used with equally good results for clutching a wheel or pulley to or releasing it from a single shaft, and it will be noted that the operating parts of the clutch are almost wholly within the limits of the rim 4 of the wheel or pulley, and hence are protected from injury, the device occupying but little space on the shaft or shafts.

Having thus described my invention, I

claim and desire to secure by Letters Patent—

1. The combination of a hub having a projecting clutch-flange, a second hub having a rim with internally-projecting lugs, a pair of clutch-rings mounted in said rim, and recessed for the reception of the lugs of the same, whereby they will turn with, but can move longitudinally and independently of, the rim, bolts passing through said rings, and toggle mechanism acting upon the bolts and upon the rings, substantially as described.

2. The combination of a hub having a projecting clutch-flange, a second hub having a rim with internally-projecting lugs, a pair of clutch-rings mounted in said rim and recessed for the reception of the lugs of the same, whereby they will turn with, but can move longitudinally and independently of, the rim, bolts passing through said rings, a pair of toggle-links on each side of each bolt, one of said toggle-links being hung to the outer end of the bolt, and the other to one of the clutch-rings, a radial link connected to each pair of toggle-links, and a sliding sleeve connected to said radial links, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GUSTAVE E. ANDERSON.

Witnesses:

MURRAY C. BOYER,
JOS. H. KLEIN.