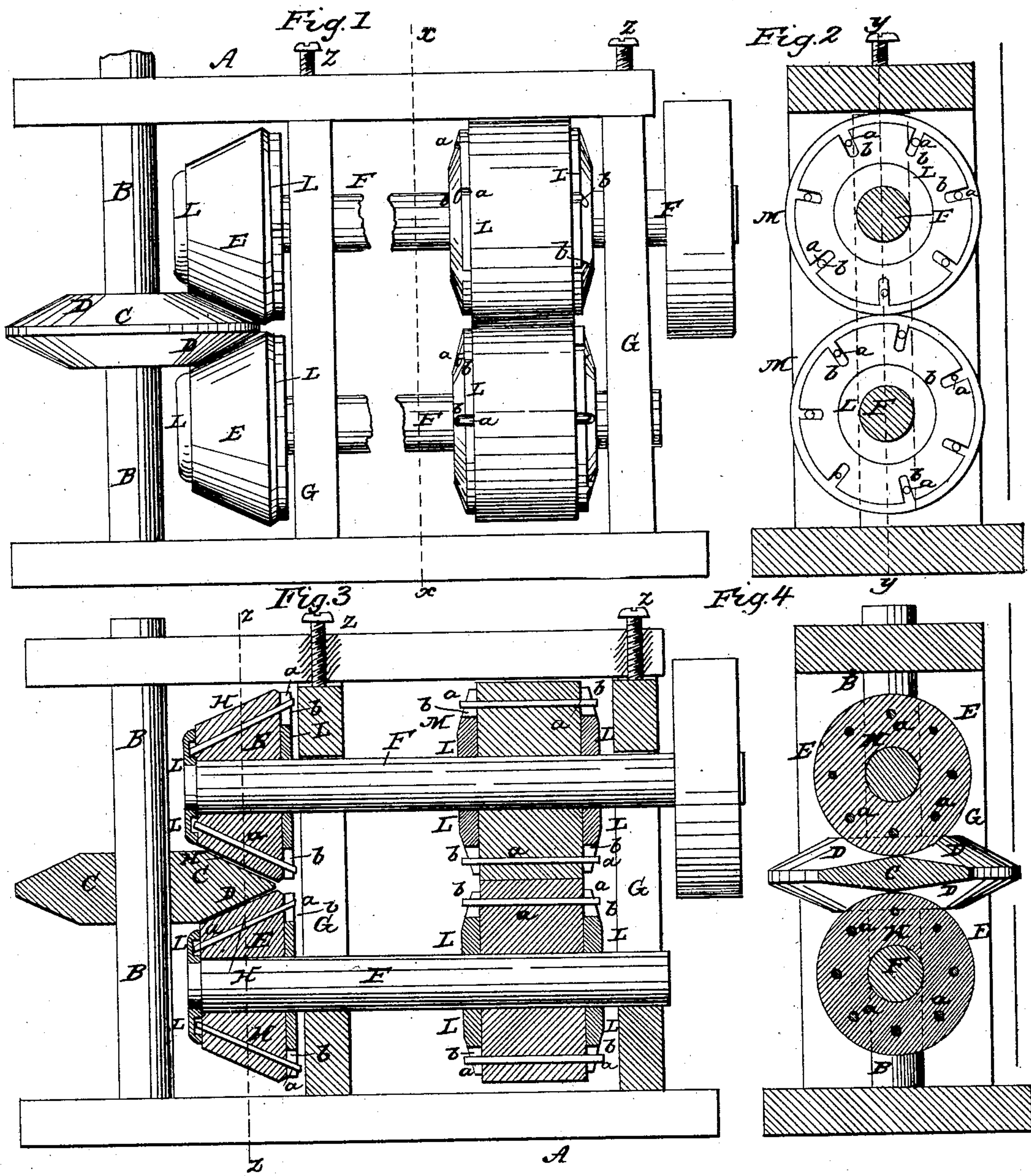


D. H. CHAMBERLAIN.

Frictional Gearing.

No. 100,977.

Patented March 22, 1870.



Witnesses
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DEXTER H. CHAMBERLAIN, OF WEST ROXBURY, MASSACHUSETTS.

Letters Patent No. 100,977, dated March 22, 1870.

IMPROVEMENT IN FRICTIONAL GEARING.

The Schedule referred to in these Letters Patent and making part of the same.

To all to whom these presents shall come:

Be it known that I, DEXTER H. CHAMBERLAIN, of West Roxbury, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Frictional Gearing, and that the following is a full and exact description of the same, reference being had to the accompanying plate of drawings.

The present invention relates to frictional gearing, that is, gearing with which motion is communicated simply by the friction of surfaces one upon another; and

The invention consists in driving a frictional wheel or surface by the direct action of a friction-wheel or surface arranged to bear thereon, in combination with a frictional wheel or surface arranged to bear on the frictional wheel or surface to be driven in a plane against the action of the driving frictional wheel or surface thereon, whereby the frictional contact of the driving and driven wheels and surfaces is rendered the more firm, reliable, and strong, and all possibility of "slip" obviated.

In the accompanying plate of drawings my improvements in frictional gearing are illustrated—

Figure 1 being a side view of the arrangement and construction of frictional gearing, according to the several parts of the invention.

Figure 2, a transverse section in plane of line $x x$, fig. 1;

Figure 3, a central longitudinal section in plane of line $y y$, fig. 2; and

Figure 4, a transverse section in plane of line $z z$, fig. 3.

A, in the drawings, represents a frame-work or stand, in which frictional gearing, constructed according to the present invention, is arranged.

B, a vertical shaft, arranged to turn in suitable bearings of the stand A.

C, a wheel fastened to vertical shaft B.

This wheel is similarly beveled upon its opposite faces D, and on such faces D, one to each face, similar frictional wheels E E are arranged to bear by their peripheries, which are of a taper corresponding therewith.

These frictional wheels E E are each attached to separate horizontal shafts F, arranged to turn within bearings of the uprights G to stand A.

The bearings in the uprights G for the lower one of the shafts F are fixed.

The bearings for the upper shaft F are constructed of blocks arranged to be moved up and down in the posts G, said blocks being actuated and held in position by set-screws Z, properly arranged in the frame A therefor.

By these set-screws Z, acting through the said

bearing-blocks, the shafts turning in the same can be adjusted and held in position for the frictional wheel carried by it to more firmly bear against the wheel C.

The bearings for the lower shaft may be arranged for adjustment as above described, and those for the upper shaft fixed in position, or they may be both arranged for adjustment.

To one of the shafts F, through any suitable means, power is connected, driving it, and thus, through its frictional gear and the wheel D, the vertical shaft B, to which such wheel is attached, or other mechanism, as the case may be.

By the arrangement of two frictional wheels E E, in connection with the wheel to be driven as above described, the driven wheel is enabled to be held firm and solid against the driving-wheel, which, as is obvious, will tend to prevent "slip" occurring.

To produce a greater amount of contact surface in frictional gearing, I cover such surfaces with India rubber H, or any of its elastic compounds or any equivalent material therefor, so that in the running of the same they can "flatten" at the ever-changing point of contact, thereby correspondingly increasing the contact between them, and rendering their action upon each other more sure and certain, the elastic nature of the said coverings forcing them to their original shape after escape from contact.

In the present instance the rubber is shown as fastened to the frictional wheels by pins or stems a , arranged around within the rubber in lines parallel, or nearly so, with the axis of the wheel or shaft, which pins project from the ends of the rubber into radial slots or notches b of head-plates L, fastened by keying or otherwise to the shaft against the ends of the rubber.

The fastening for the rubber, arranged and constructed as above described, with pressure upon the rubber, moves in and with the same, in contradistinction to opposing or resisting it, as has hitherto been the case in all modes of fastening for rubber on shafts, &c., thereby, as is obvious, thoroughly counteracting the action of such pressure to loosen the rubber about its fastening to the shaft or wheel, while at the same time its motion in conjunction with the shaft or wheel is perfectly insured.

The mode of applying and securing rubber, &c., to shafts above described is most perfectly and fully illustrated at M in the drawings, and as is obvious, it is susceptible of adaptation to many purposes other than frictional gearing; as for instance, to rolls of wringing-machines and fulling-machines, to calendar-rolls, &c., where the use of an elastic or yielding surface to rolls is desirable, and for this mode of fastening rubber I intend, and I reserve to myself the right, hereafter to apply for separate Letters Patent.

The frictional wheels or surfaces, in lieu of being of the form particularly described, may be made of other and various forms, as, for instance, concave, convex, and in parallel planes to their line of motion.

Having thus described my invention,

What I desire to claim, and to have secured to me by Letters Patent, is—

1. The combination of wheels or surfaces arranged for frictional action, when in such combination a frictional wheel or surface is arranged for action with regard to the driving and driven wheels or surfaces, substantially as described, for the purpose specified.

2. In combination with the above, the said frictional surfaces, when made of India rubber or other elastic material, substantially as described, for the purpose specified.

The above specification of my improvement in frictional gearing signed by me this 8th day of November, A. D. 1869.

D. H. CHAMBERLAIN.

Witnesses:

ALBERT W. BROWN,
EDWIN W. BROWN.