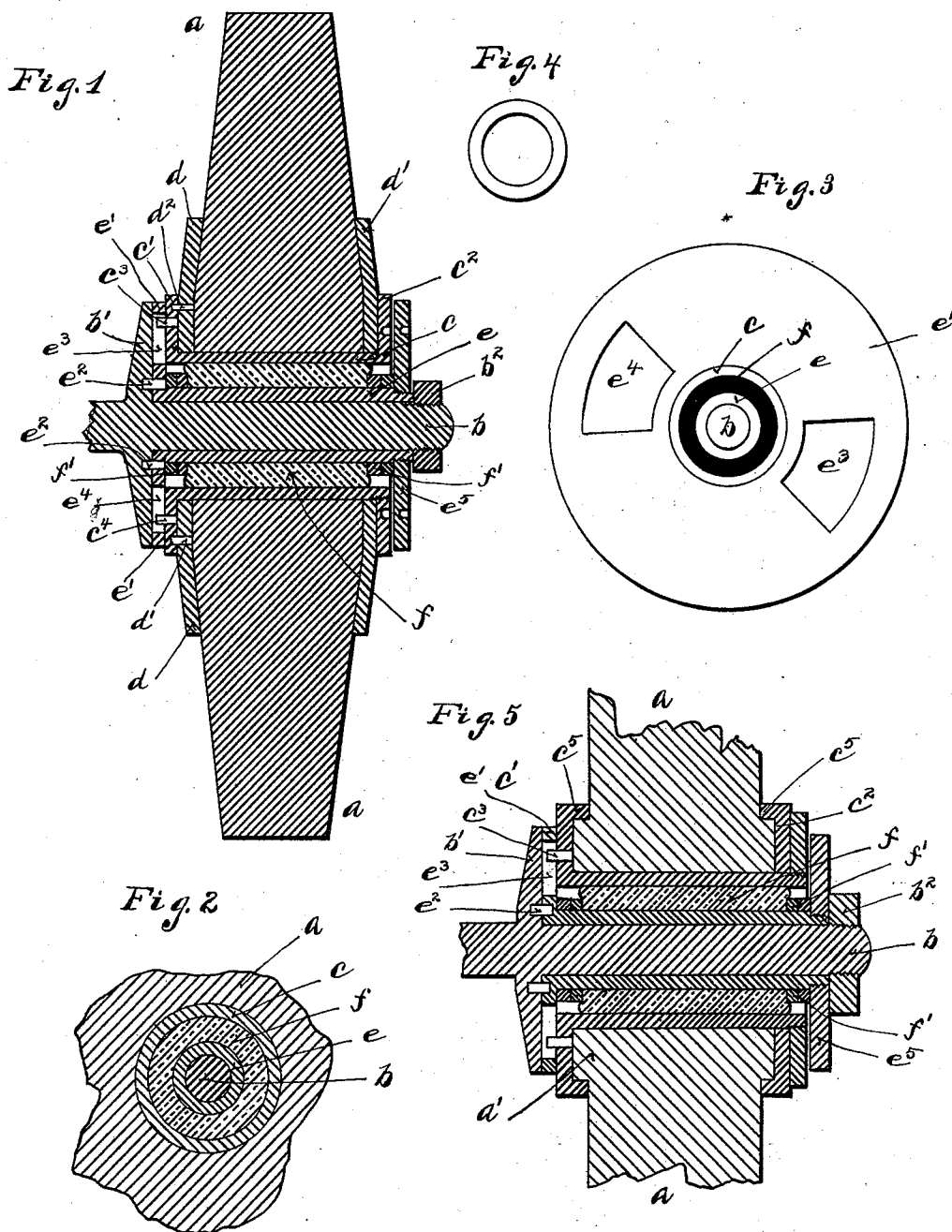


(No Model.)

D. B. HYDE.
ELASTIC EMERY WHEEL.

No. 528,726.

Patented Nov. 6, 1894.



WITNESSES:

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ELASTIC EMERY-WHEEL.

SPECIFICATION forming part of Letters Patent No. 528,726, dated November 6, 1894.

Application filed March 13, 1894, Serial No. 503,520. (No model.)

To all whom it may concern:

Be it known that I, DAVID B. HYDE, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Elastic Emery-Wheels, of which the following is a specification.

My invention relates to improvements in emery wheels; and the object of my invention is to provide an intermediate elastic support between the emery wheel proper and its supporting arbor, by means of which the wheel is adapted to yield under heavy pressure, and also to compensate for irregularities in the size or weight of the wheel; the construction of my improved devices being such that the elasticity of the supporting devices may be adjusted within certain limits, as desired. I attain these objects by the constructions shown in the accompanying drawings, in which—

Figure 1 is a vertical sectional elevation of a device embodying my invention. Fig. 2 is a partial side elevation of the same with some of the clamping parts removed. Fig. 3 is an end elevation of the arbor with the wheel and its connected parts removed, showing the elastic sleeve and the compression washers. Fig. 4 is a detail view of one of said washers. Fig. 5 is a sectional elevation showing a modification.

Like parts are represented by similar letters of reference in the several views.

In the said drawings, *a a* represent an emery wheel of any desired construction; *b*, the arbor; and *b'*, a stationary collar thereon constructed in the usual manner.

The emery wheel *a a*, instead of being mounted directly on the arbor, has an enlarged eye adapted to fit over a sleeve *c*, provided with an annular flange or collar *c'*, at one end, and at the other with a clamping ring or collar *c²*, which is adapted to screw onto the end of the sleeve, the parts being respectively screwthreaded for this purpose.

Between the collars *c'* and *c²*, respectively, and the sides of the emery wheel, I preferably provide safety collars *d d'*, having a concave surface adapted to fit over a correspondingly convex surface on the emery wheel, so as to secure the same firmly in position and prevent the parts from breaking, or flying if

broken. One of these safety collars, *d*, is connected to the flange or collar *c'* by means of a small stud or pin *d²*, which causes the parts to turn together.

Mounted directly on the arbor *b*, and adapted to fit snugly thereon, is a sleeve *e*, having at one end a projecting flange or collar *e'*, which rests against the stationary collar *b'* on the arbor, and which is preferably connected thereto by means of a small dowel pin or projection *e²*, to cause the parts to revolve together. The outer diameter of the sleeve *e* is considerably less than the inner diameter of the sleeve *c*, and the intervening space between these respective sleeves is filled up by an elastic collar or sleeve *f*, preferably of rubber. The flange *e'* of the sleeve *e*, is further provided with openings *e³ e⁴*, on opposite sides thereof, into which extend pins or projections *c³ c⁴*, from the flange *c'* of the sleeve *c*. The openings *e³ e⁴* are of a sufficient size to permit the sleeve *c* to move in any direction by the yielding of the elastic sleeve *f*. At the same time a driving connection is secured between the flanges *e'* and *c'* by means of the pins extending into said openings *e³ e⁴*. The sleeve *e* is screwthreaded on the opposite end from the flange *e'*, and is provided with a clamping collar *e⁵*, which is correspondingly screwthreaded to screw thereon. The sleeve, however, is shouldered so that the collar *e⁵* may be screwed tightly onto said sleeve without binding the sleeve *c*, which is made a trifle shorter than the distance between the respective collars or flanges *e'* and *e⁵*, so as to move freely between the same to compensate for the yielding of the elastic sleeve *f*, the clamping collars *c²* and *e⁵* being adapted to be screwed into position by a suitable spanner wrench which fits in the openings in the sides of the collars, as shown in Fig. 1. The arbor *b* is screwthreaded at its outer end and provided with a clamping nut *b²* in the usual manner, which clamping nut is adapted to secure the sleeve *e* and its supported parts onto said arbor.

By the construction above described it will be seen that the wheel is supported on the arbor and adapted to turn therewith. At the same time it is permitted to yield under an undue pressure, or to compensate for any

irregularity in the diameter of the wheel, or the weight, which would tend to throw the wheel out of balance.

To provide for adjusting the elasticity of the sleeve *f*, I employ small washers or collets *f'*, the outer diameter of which is less than the inner diameter of the sleeve *c*, said washers being provided with a central opening to fit snugly over the sleeve *e*. By placing one or more of these washers at each end of the sleeve, and screwing the clamping collar *e'* securely to its position, the elastic sleeve is compressed at its respective ends so as to place a greater tension on the molecules thereof and thus vary the elasticity thereof. These washers being of a smaller diameter than the sleeve *c*, permit the same to move as desired to compensate for the yielding of the collar.

In Fig. 5 I have shown the construction slightly modified. In this case the wheel *a* is provided with an enlarged hub *a'*, and the respective collars or flanges *c'* *c''* on the sleeve *c* are provided with inwardly extending shoulders *c''*, adapted to fit over said hub, the safety collars *d* and *d'* being dispensed with.

Having thus described my invention, I claim—

1. An elastic emery wheel support consisting essentially of an arbor, and a flanged sleeve to fit said arbor, a flanged supporting sleeve on which said wheel is mounted, an intermediate elastic ring or sleeve inserted between the arbor sleeve and supporting sleeve, and a loose driving connection between the flanges of the respective sleeves, substantially as specified.

2. The combination with the arbor sleeve having a flange or collar thereon, an opening in said flange or collar, a supporting sleeve on which the wheel is mounted having a flange or collar with projections to engage in said

opening, an intermediate elastic sleeve between the arbor sleeve and the supporting sleeve, clamping collars on the respective sleeves, as described, and means, substantially as described, of varying the tension of the intermediate elastic sleeve, substantially as specified.

3. An arbor sleeve having stationary and removable collars, as described, a wheel-supporting sleeve also having stationary and removable collars, intermeshing parts on the respective collars of said sleeves to form a loose driving connection, as described, a yielding or elastic sleeve arranged between said supporting and arbor sleeves, and removable compression washers adapted to bear against the end of said elastic sleeve and compress the same when the removable collar on the arbor sleeve is tightened, substantially as specified.

4. The combination with an arbor, a flanged sleeve thereon having a removable clamping collar, as described, a wheel-supporting sleeve having stationary and removable collars, and a collar on opposite sides of the wheel, as described, intermeshing projections between the respective collars of said supporting and arbor sleeves to form a loose driving connection, and a rubber ring between said arbor sleeve and supporting sleeve, removable washers arranged at the end of said rubber ring adapted to compress said ring as the clamping collar is screwed onto said arbor sleeve, and engaging safety collars between said wheel sleeve and wheel, substantially as specified.

In testimony whereof I have hereunto set my hand this 19th day of February, A. D. 1894.

DAVID B. HYDE.

Witnesses:

ROBERT C. RODGERS,
PAUL A. STALEY.