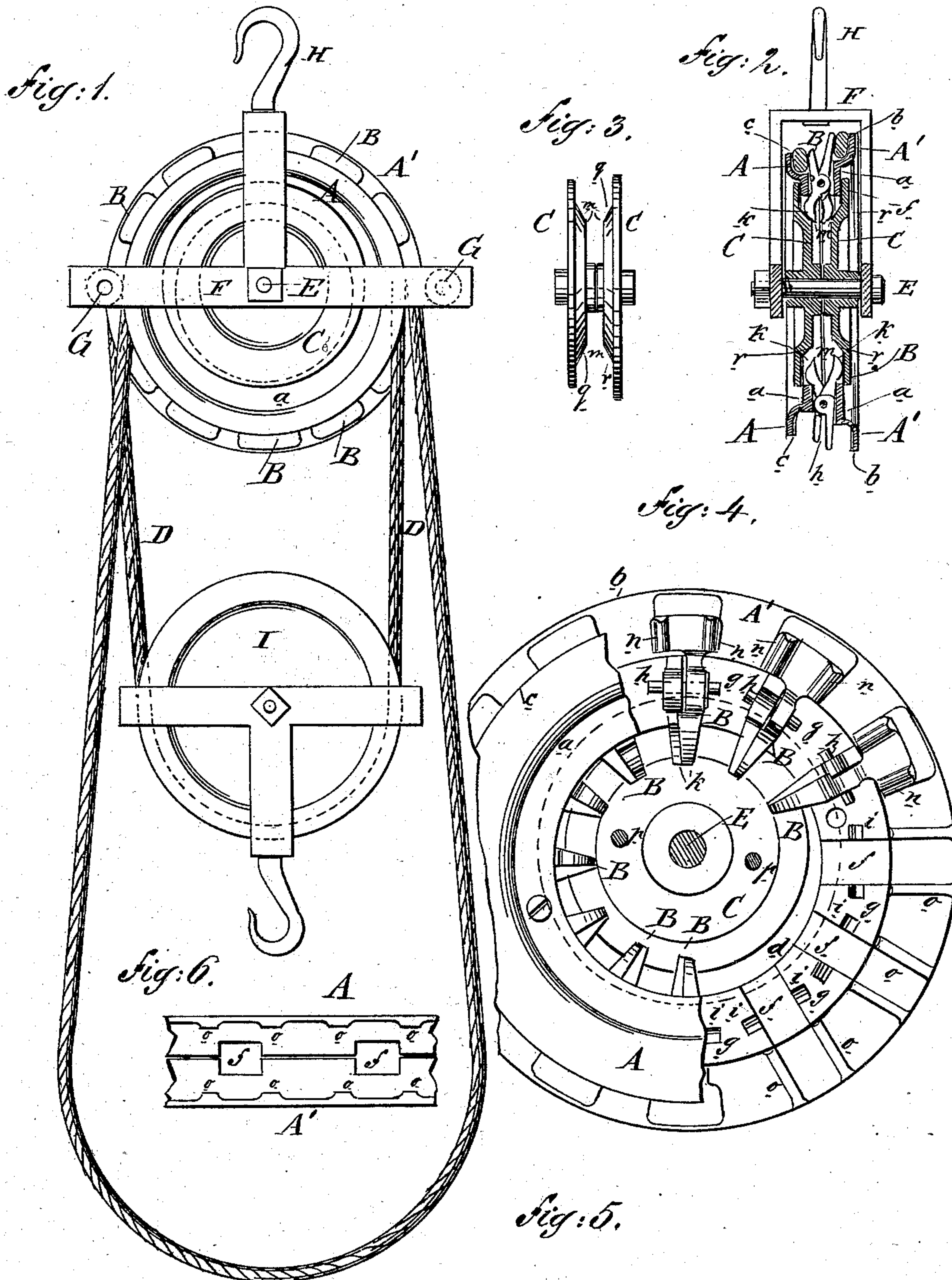


(No Model.)

D. W. WARREN.
GRIPING PULLEY.

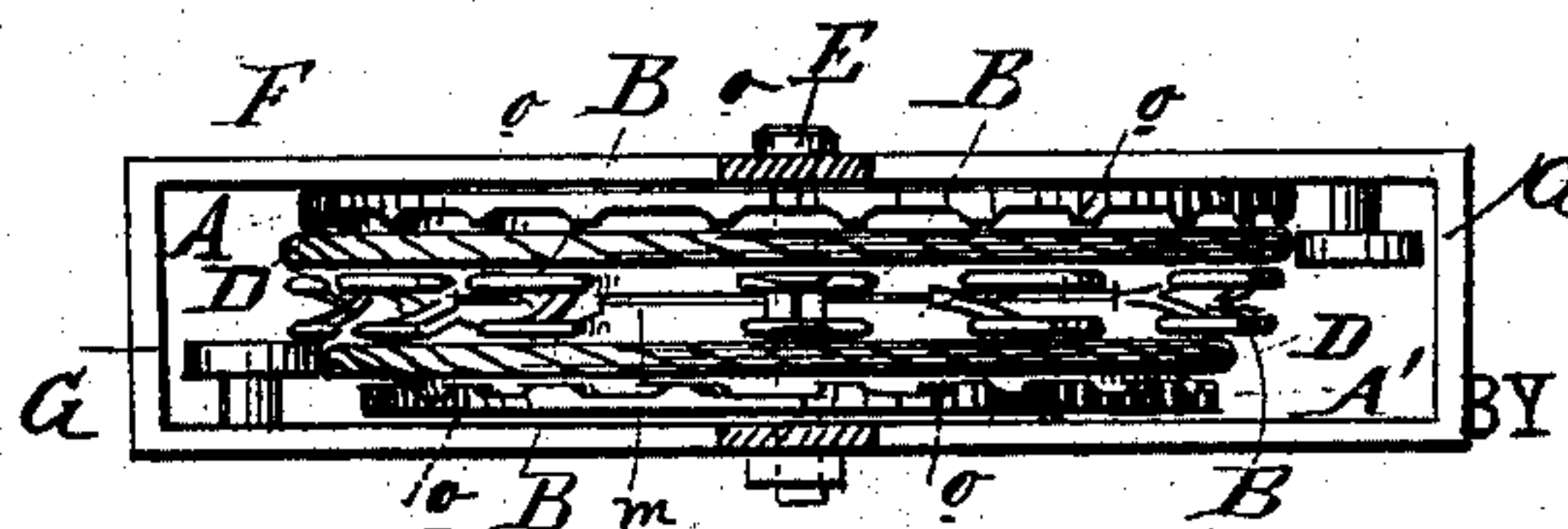
No. 255,827.

Patented Apr. 4, 1882.



WITNESSES :

Chas. Viala.
B. G. Underwood.



INVENTOR:

D. W. Warren.

Miss H

ATTORNEYS.

UNITED STATES PATENT OFFICE.

DANIEL W. WARREN, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND
JOHN H. BLAISDELL, OF SAME PLACE.

GRIPPING-PULLEY.

SPECIFICATION forming part of Letters Patent No. 255,827, dated April 4, 1882.

Application filed August 29, 1881. (No model.)

To all whom it may concern:

Be it known that I, DANIEL W. WARREN, of the city, county, and State of New York, have invented a new and Improved Gripping-Pulley, of which the following is a full, clear, and exact description.

The object of this invention is to prevent the slipping of the rope or chain on the pulley; and the invention consists of a double circle of clamps or levers pivoted between the two annular pulley-sections, with their smaller and curved ends converging to the pulley center and their broad heads projecting into the groove between the rims of the pulley-sections, one series or circle of the levers having their heads projected beyond those of the other series to form in effect a movable inner flange for the larger pulley, while the other series or circle forms in effect a movable inside flange for the smaller pulley; and it consists, further, of two movable pulley centers or disks centrally through which the horizontal pulley-arbor passes, having annular inclined planes on their inner faces, which disks are applied and held to the opposite sides of the pulley, over the central opening thereof, by screws or other device, so that their inclined planes form an annular groove into which the inner ends of the levers project, and so that when the said pulley is in operation a weight suspended from it will operate to draw its annular sections and attached levers down in such a manner that the lower ends of those levers above the median horizontal line of the pulley, which are vertical, or nearly so, are brought in contact with the inclined faces of the disks, and are thereby brought together in successive pairs, whereby the said levers are spread or thrown apart at their tops with the effect of contracting the pulley-grooves at those points, and thereby compressing the rope or chain. As the pulley revolves and the upper levers are thereby released from the disks those following in order become engaged in them, and the lowest levers are by their gravity always disengaged from said disks.

Figure 1 is a side elevation of my improved pulley with connected hook block or sheave and tackle. Fig. 2 is a sectional edge elevation of the pulley. Fig. 3 is an edge elevation

of the central disks. Fig. 4 is an enlarged side elevation of the pulley, with a central disk removed and parts removed and broken away to exhibit other parts. Fig. 5 is a plan of the pulley. Fig. 6 is a plan of a portion of the same.

Similar letters of reference indicate corresponding parts.

In the drawings, A A' represent the annular pulley-sections, having their sides depressed, as shown at *a*, that the central disks, C, may be applied without projecting beyond the faces of the pulley-flanges *b c*. These sections A A', though of different diameters, have central openings, *d*, of equal diameters, as shown. In their inner edges are formed opposite recesses *f*, so that when said sections A A' are put together to form a pulley these recesses *f* form sockets with intermediate blocks, *g*, and in these sockets *f*, on pins *h*, that are journaled in bearings *i* in the blocks *g*, are pivoted, in pairs, the compression-levers B. The inward-projecting points of these levers B are rounded or beveled off on their outer faces, as shown at *k*, to conform with the V-shaped groove between the disks C, and said points are of equal lengths. In each pair of these levers B, however, the head of one projects farther outward than that of the other, the longer levers B forming in effect the inside movable flange of the larger pulley, while the shorter levers B form in effect the inside movable flange of the smaller pulley. The outer faces of these lever-heads are preferably ribbed or corrugated, as shown at *n*, for establishing, in combination with corresponding ribs or corrugations, *o*, on the inside of the pulley-flanges *b c*, a better hold or greater friction upon the rope or chain D.

The central disks, C, that are applied over the central opening, *d*, and are held together by bolts or screws *p* passing through them, have formed on their inner faces flat circular tables *q*, of less diameter than the opening *d*, and the edges of these tables *q* are beveled off or inclined, as shown at *r*, for contact with the beveled ends of the levers B, these disks C being movable relatively to the pulley-sections A. An arbor, E, passing horizontally through the centers of the disks C, supports the de-

vice in the frame F, which latter is provided with guide-rolls G for directing the rope or chain D.

The device is suspended by hook H, and a hook block or sheave, I, is held in the bight of the rope or chain D, after the ordinary manner of arranging differential pulleys.

It will be seen that the pulley rings or sections A A' carry the rope or chain D, that the levers B compress said rope D, and thereby prevent its slipping, and that the disks C support the load that may be attached to the sheave I. The heavier the load attached to the device the greater the force with which the rings or sections A A' will be forced down with their attached levers B, and in the same measure the inner ends of those vertical, or nearly vertical, levers that may be above the median horizontal line of the pulley, and are pressed by the rope D, are forced between the inclined faces of the disks C, and the heads of said levers thereby forced outward to compress and hold the rope D. As the said pulley revolves the upper levers, B, break contact with the rope D, and fall outward by their own gravity, with their heads approached to each other, as shown in Fig. 2.

I do not confine myself to the precise construction of parts as herein shown and described, as it is manifest that modifications may be made without departing from my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A pulley constructed substantially as herein shown and described, consisting of flanged annular sections or rings A A', compression-levers B, and central disks, C, provided with inclined planes, as set forth.

2. In a pulley, as a means for supporting the rope in position, the flanged annular sections A A', substantially as herein shown and described.

3. In a pulley, as a means for compressing and holding the pulley-rope, the compression-levers B, substantially as herein shown and described.

4. In a pulley provided with compression-levers B, the supporting-disks C, having inclined faces, substantially as herein shown and described, whereby said levers are operated, as set forth.

5. The combination, with the flanged annular pulley-sections A A', provided with sockets f, of the pivoted compression-levers B and disks and arbor C E, the said disks forming an annular groove, substantially as herein shown and described.

6. In a pulley, as a means for compressing and holding the rope, the combination of compressing-levers and inclined planes moving relatively to each other as set forth.

DANIEL W. WARREN.

Witnesses:

C. SEDGWICK,
JACOB J. STORER.