(No Model.)

A. J. B. BERGER.

POWER WHEEL.

No. 528,518. Patented Oct. 30, 1894.

Fig. 1.

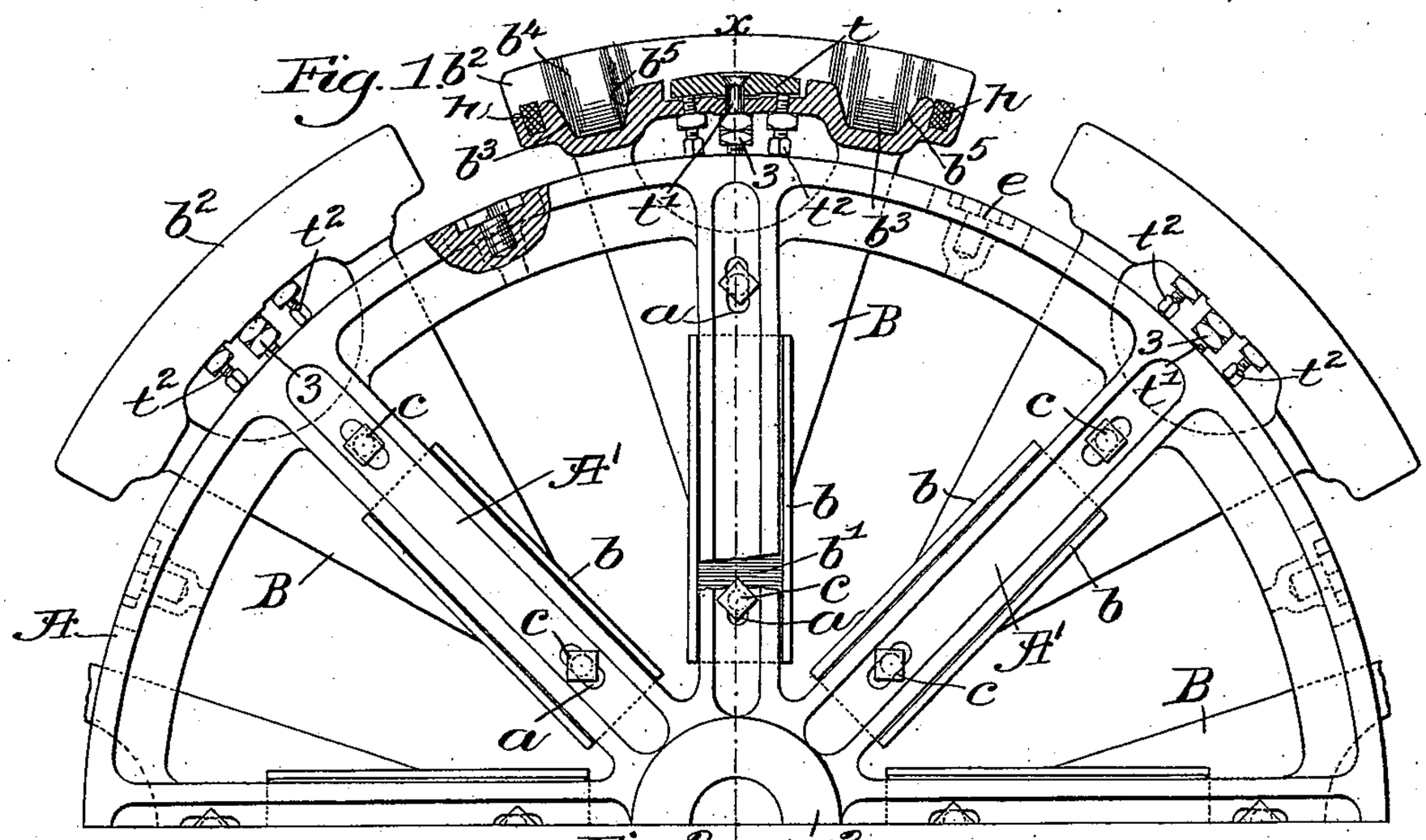

Fig. 2.

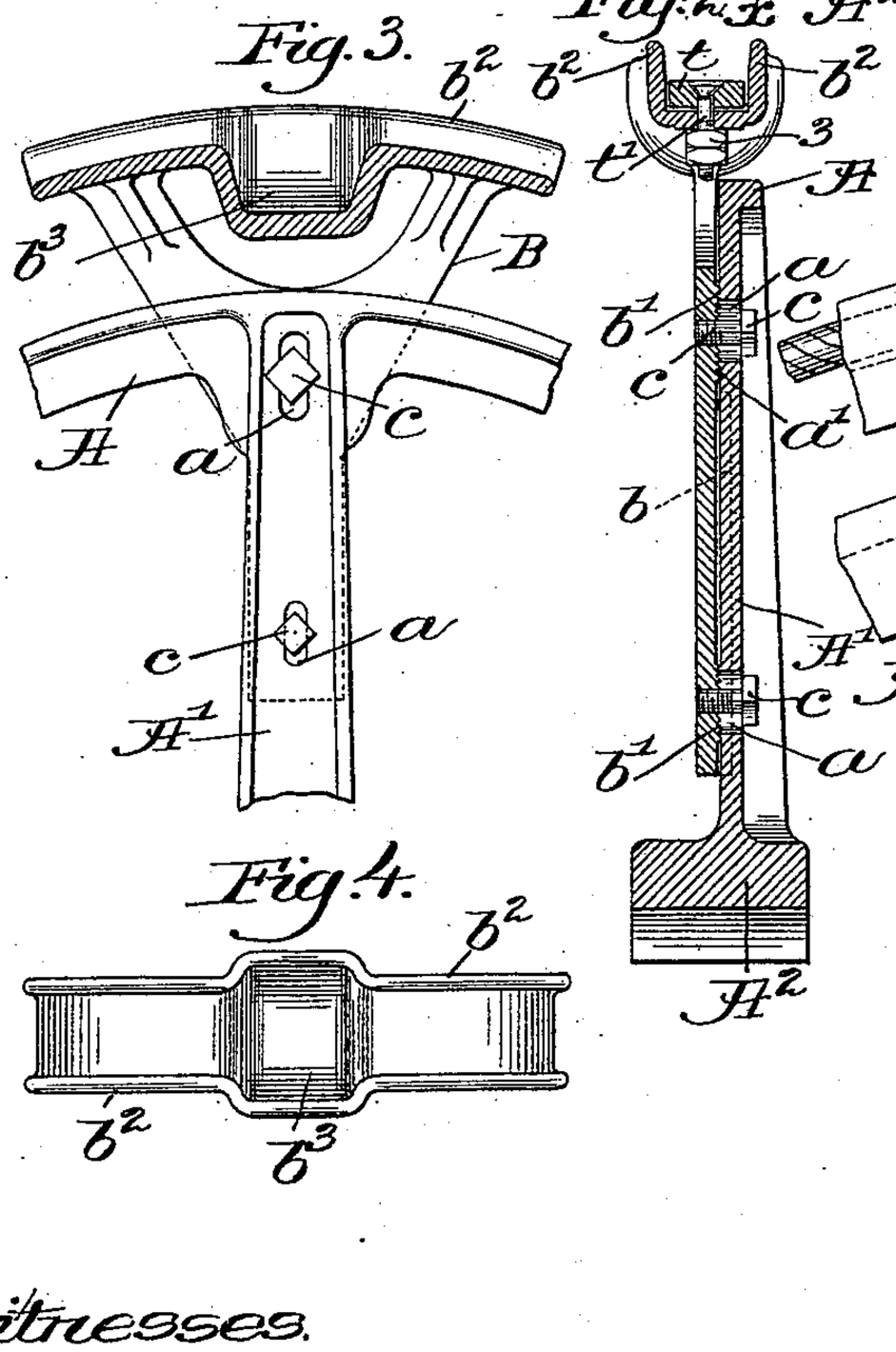

Fig. 3.

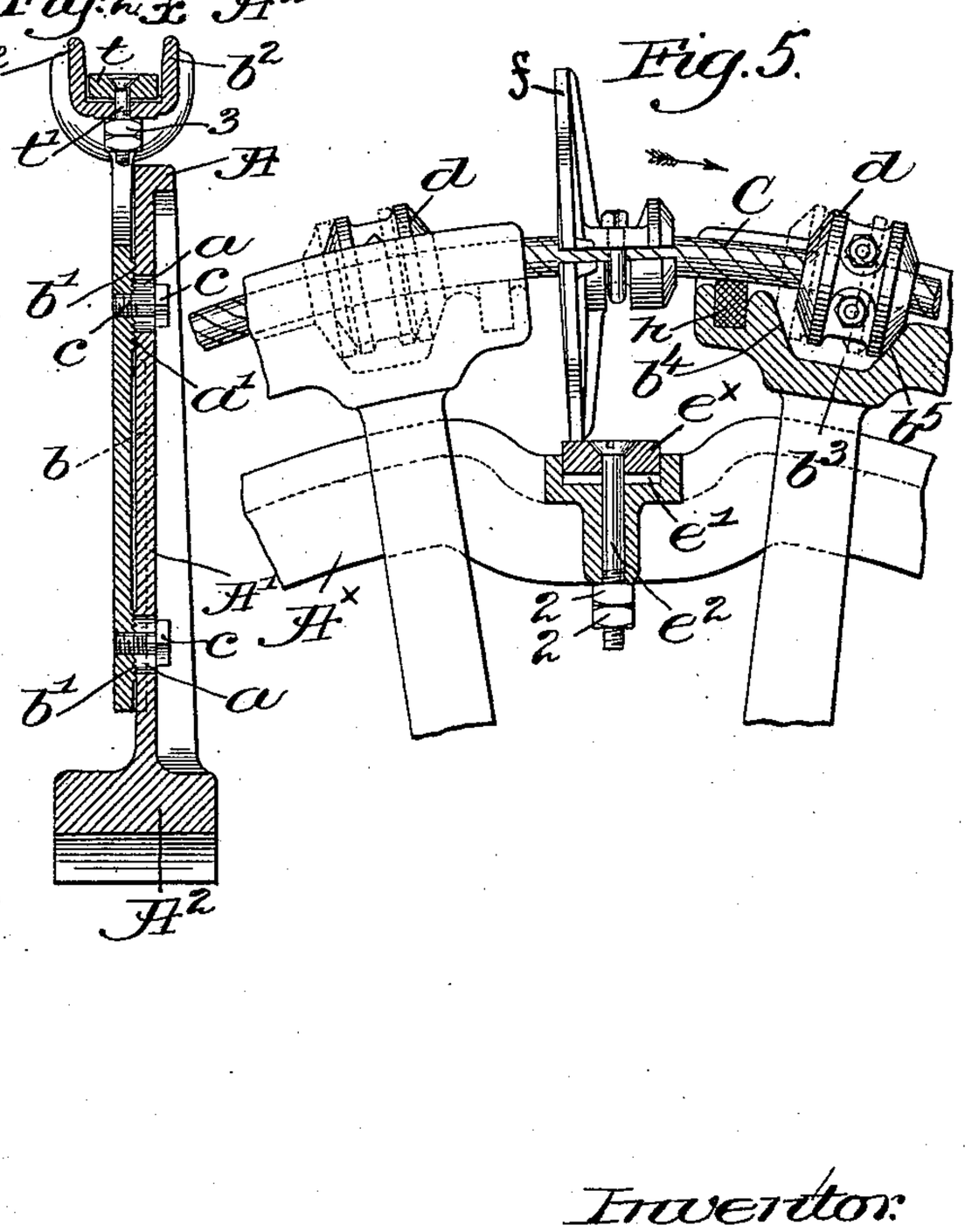

Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

AMBROSE J. B. BERGER, OF HINGHAM, MASSACHUSETTS, ASSIGNOR TO THE STEEL CABLE ENGINEERING COMPANY, OF MAINE.

POWER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 528,518, dated October 30, 1894.

Application filed March 15, 1894. Serial No. 503,742. (No model.)

To all whom it may concern:

Be it known that I, AMBROSE J. B. BERGER, of Hingham, county of Plymouth, State of Massachusetts, have invented an Improvement in Power-Wheels, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In the construction and operation of cable conveyers or elevators the cable is passed around a power wheel and a suitable return wheel, the two being located at opposite ends of the run, the power wheel having its periphery adapted to engage suitable attachments secured to the cable to drive the same.

This invention has for its object the production of a power wheel for conveyers or elevators of the class described, wherein the tread surface of the wheel is made in separate adjustable sections, so that the effective diameter of the wheel can be increased to take up slack in the cable and bring the attachments thereon into proper position to co-operate with suitable portions of the wheel, and thereby impart motion to the cable.

In accordance therewith my invention consists, in a reversible power wheel for endless cable conveyers, of a main frame, combined with a series of independent and separated radially adjustable tread sections thereon, located beyond and having their faces concentric with the rim, and each provided with an engaging pocket for the driving attachments, the openings intermediate the separated ends of adjacent tread sections receiving the flights as they pass around the wheel, and permitting their inner edges to rest upon the rim of the main frame, said wheel being operative when rotated in either direction, substantially as will be described.

Other features of my invention will be hereinafter described and particularly pointed out in the claims.

Figure 1 in side elevation and partly in section represents a sufficient portion of a power wheel to enable my invention to be understood. Fig. 2 is a section thereof taken on the line *x*—*x*, Fig. 1. Figs. 3 and 4 are detail views of a modified form of tread section to be described; and Fig. 5, in elevation and partly in section represents yet another modification.

In the specification and claims, by the use of the word "conveyer" it will be understood that I mean to include an elevator, the only substantial difference between the conveyer and the elevator system residing in the fact that a conveyer carries the material along from one place to another differing slightly in altitude, or on a level by means of flights or scrapers, while an elevator generally raises the material to a considerable distance vertically, by buckets.

Referring to the drawings, I have shown my power wheel as consisting of a frame composed of an annular rim A supported by arms A′ and secured thereby to a hub A^2, the arms being radially slotted, as at *a*, and provided with a series of corrugations *a*′, see Fig. 2, upon their flat faces, said arms supporting a series of segmental tread sections B concentric to the rim and provided with suitable flanges or lips *b* to embrace the arms A′, the said sections having, as shown in Fig. 2, suitable corrugations *b*′ to co-operate with the corrugations *a*′ upon the arms to prevent slipping when the sections are adjusted and bolted together.

Adjusting screws or bolts *c* are extended through the slots *a* in the arms and enter the adjacent portions of the tread sections, whereby the latter are held in adjusted position, and it will be evident by an inspection of the drawings that by loosening the said screw *c* the tread sections may be moved radially and independently toward or from the center of the wheel to thereby alter or adjust the operative diameter or tread.

In Fig. 1, I have shown each tread section as having side flanges b^2 to retain the cable and its attachments in position as they pass around the wheel, two pockets, as b^3, being formed in the face of each tread section between the side flanges to receive the driving attachments *d*, shown only in Fig. 5, which are securely clamped to the cable C, the side flanges being suitably shaped to give sufficient width to the pockets.

While in Fig. 1, I have shown each tread section as provided with two pockets, in Figs. 3, 4 and 5 only one pocket is shown, but in

each case the construction of the pocket is substantialy the same, the number of pockets depending upon the character of the work to be done, the construction of wheel shown in Fig. 1 being well adapted for use on long conveyers where heavy work is required, while in Figs. 3 and 5 on a wheel of the same tread diameter only half the number of pockets are used for a shorter cable or for one performing lighter work.

The front and rear faces b^4, b^5, respectively, of the pockets are inclined toward the bottom of the pocket at the same angle in order that the wheel may be rotated in either direction; and in Fig. 5, when the wheel is rotated in the direction of the arrow the driving attachments d would bear against the faces b^4, as shown by dotted lines, whereas, if the rotation was in the direction opposite to the arrow, the attachments would bear against the faces b^5, as shown in full lines.

It will be noticed that each tread section is separated from the adjacent sections by a considerable space, such space being occupied by the flight attachment f, as shown only in Fig. 5, the space between the sections being sufficiently wide to admit of the entrance of the flight attachment readily thereinto. By this construction it will be evident that the flight attachments have no work whatever to perform in driving the cable or transferring the power from the wheel thereto, so that the flights may be made lighter, and the strain upon the cable and its attachments is much more evenly distributed.

The annular rim A of the frame provides a bearing surface for the inner edge of each flight between the tread sections, if necessary, so that the continuity of the curve of the cable is preserved as it passes over one or the other of said sections, and in order to provide for wear and to co-operate with the ready adjustment of the tread sections, I preferably provide an adjustable bearing for each flight attachment, said bearing, as shown in Fig. 1, consisting of a headed screw e let into the circumference of the rim A between the tread sections, the inner edge of the flight resting upon the head of the screw, and by rotating said screw in one or the other direction it may be moved toward or from the rim to adjust its height, as desired, thus preventing any break in the regular curve of the cable, and adding greatly to its durability.

In Fig. 5, I have shown the rim $A^\times$ as depressed between the tread sections, and recessed, as at e', to receive the bearing block $e^\times$ supported upon the threaded shank e^2 extended through the rim and provided with suitable set nuts 2, the bearing block being readily adjusted by means of the shank e^2 and set the nuts 2, the depression in the rim $A^\times$, accommodating a larger flight more readily than will the continuous rim, shown at A, Fig. 1.

As is well known conveyers and elevators of the class described are subjected to considerable stretch, especially when the run is a long one, resulting in a displacement of the attachments relative to the pockets of the power wheel, so that either a larger wheel must be provided to accommodate the new conditions, or the cable must be shortened and the attachments readjusted, either operation being objectionable on account of its cost and the loss of time involved, and if it is not done the attachments do not pocket or are not properly engaged by the tread sections, so that they will ride thereon, tending to break the cable or bend the shafts. In order to overcome such objections I have provided for the radial adjustment of the tread sections, as described, whereby the tread surface of the power wheel may be sufficiently increased to take up such slack and accommodate the attachments without their re-adjustment on the cable.

It is sometimes desirable to provide for an independent adjustment of the tread surface, particularly in the form of wheel shown in Fig. 1, and in order to accomplish such additional adjustment I support a radially movable tread block t between the pockets b^3 of the sections, said tread block being held in place by a threaded shank t' and set nuts 3 and adjusted by set screws t^2 bearing upon its under side, as clearly shown in section and elevation Figs. 1 and 2. The tread block t may be thus adjusted independently of the general adjustment of the tread sections, and such adjustment is necessary when two pockets are used in the tread sections.

At the ends of the tread sections beyond the pockets I have provided cushions h of rubber, raw-hide, wood, or other suitable material, upon which the cable rests as it leaves or approaches the tread sections to prevent undue wear at such points, which wear would prove injurious as it would tend to cut or fray the cable adjacent to the attachments.

The power wheel hereinbefore described is strong, easily adjusted and put together, and, should any of the tread sections be broken it can be readily replaced at a small cost and with little loss of time.

The attachments may be so arranged upon the cable, if desired, that the ends of the tread sections will engage and move them, the slack in the cable between the attachments being taken up by increasing the effective diameter of the tread as described.

My invention is not restricted to the precise construction and arrangement of parts as herein shown, nor to any particular form or shape of attachments, nor to the number of attachments to be acted upon by each tread section.

I claim—

1. In a reversible power wheel for endless conveyers, a main frame, combined with a series of independent and separated radially adjustable tread sections thereon, located beyond and having their faces concentric with the rim, and each provided with an engaging

pocket for the driving attachments, the openings intermediate the separated ends of adjacent tread sections receiving the flights as they pass around the wheel, and permitting their inner edges to rest upon the rim of the main frame, said wheel being operative when rotated in either direction, substantially as described.

2. In a power wheel for endless cable conveyers, a main frame provided with an annular rim, combined with a series of independent and radially movable tread sections, having their faces concentric with the rim, each having an engaging pocket for the attachment, means to secure the sections in adjusted position on the frame, and adjustable supports on said rim for the inner edges of the conveyer flights, substantially as described.

3. The herein described power wheel for endless cable conveyers, consisting of a frame composed of an annular rim and supporting arms, combined with a series of radially adjustable segmental flanged tread sections secured to the said arms, each section having a pocket to receive a driving attachment, and radially adjustable bearings carried by the annular rim, each supporting the inner edges of one of the flights between the tread sections, substantially as described.

4. In a power wheel for endless cable conveyers, a series of separated tread sections, each provided with a plurality of driving attachment pockets, combined with a tread block carried by each section between the pockets, and means to adjust said tread blocks, substantially as described.

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

AMBROSE J. B. BERGER.

Witnesses:
JOHN C. EDWARDS,
FREDERICK L. EMERY.