(No Model.) 4 Sheets—Sheet 1.

W. S. REEDER.

BELT TIGHTENER FOR COTTON GINS.

No. 437,241. Patented Sept. 30, 1890.

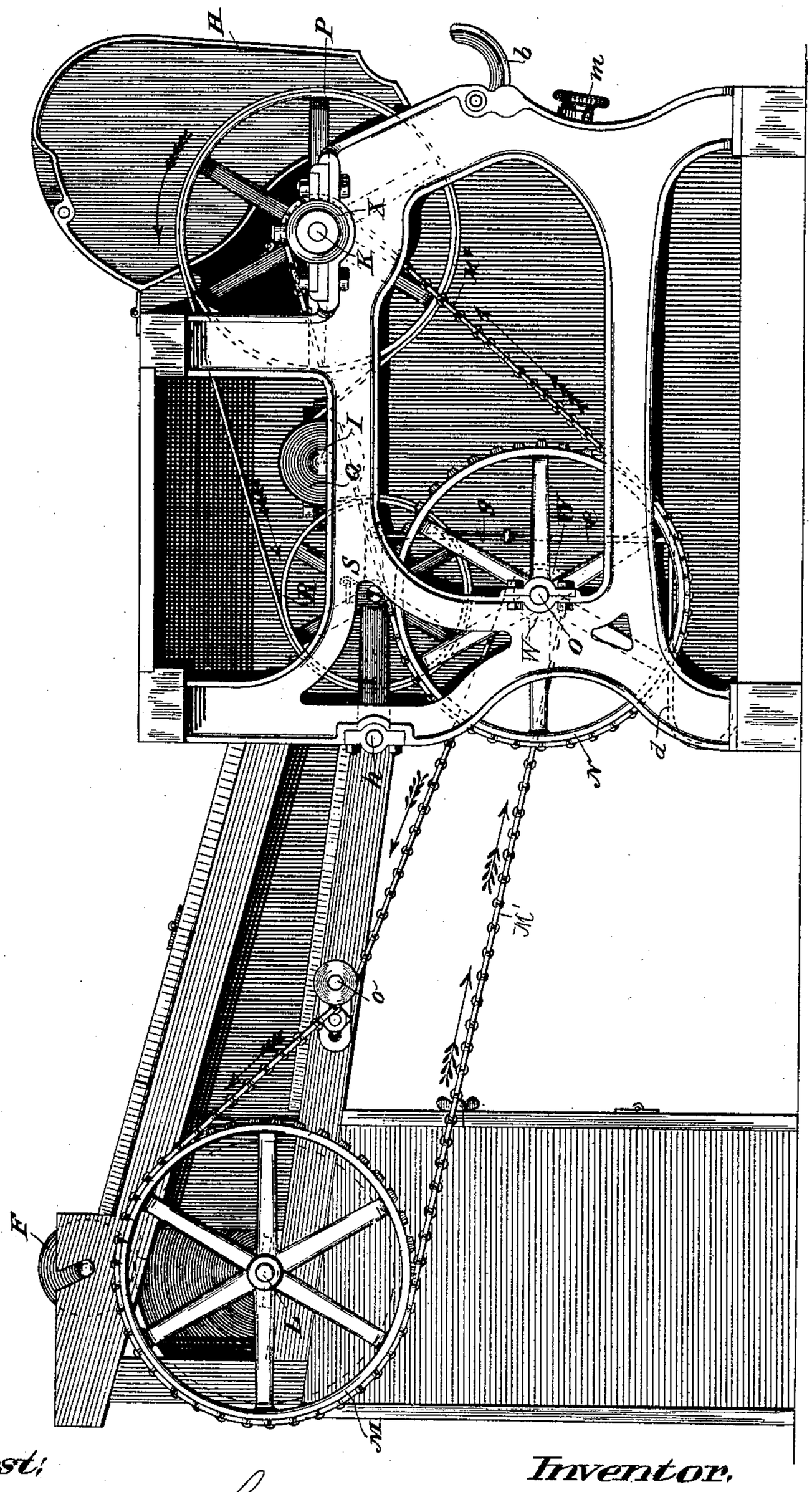

Fig. 1.

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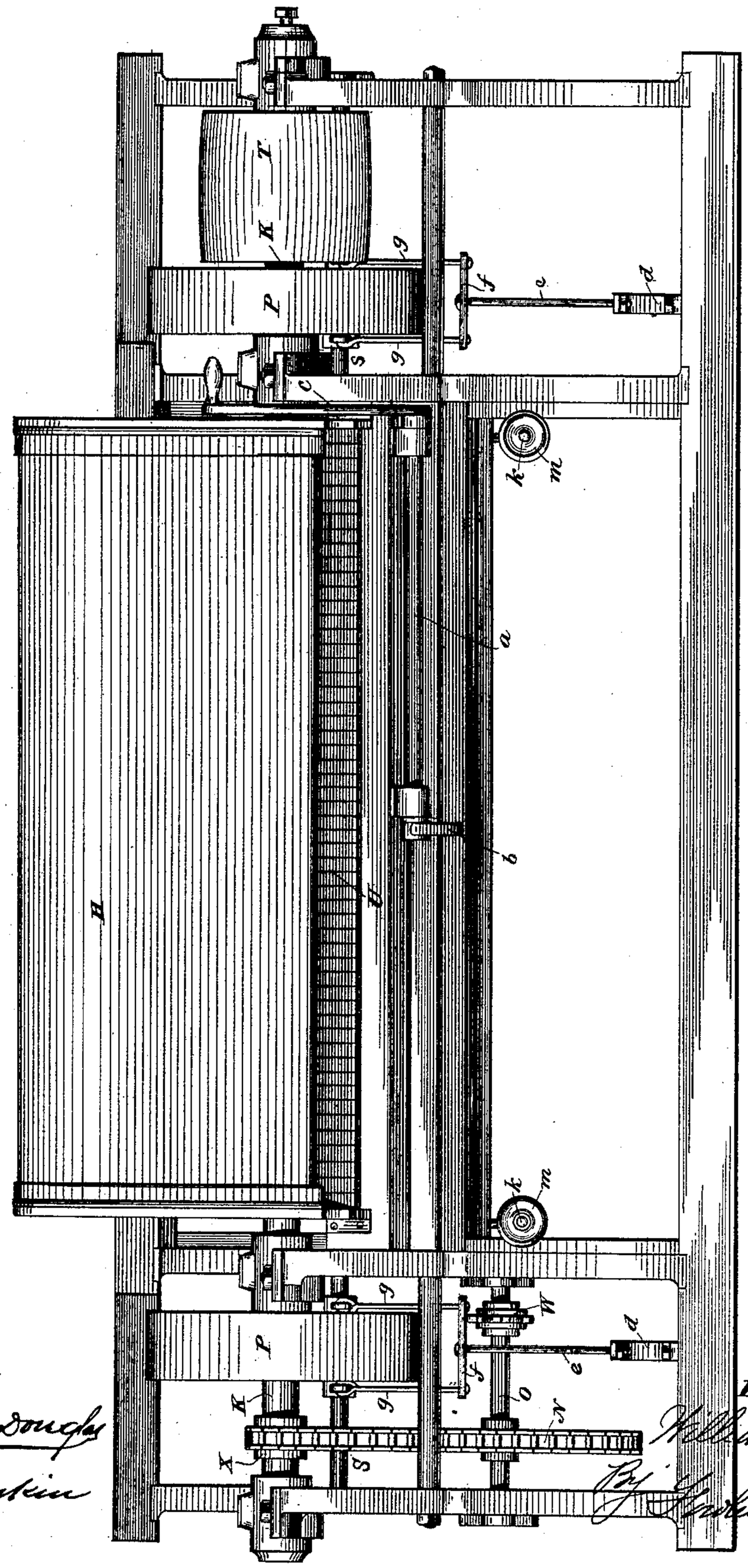

Fig. 1.

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BELT TIGHTENER FOR COTTON GINS.

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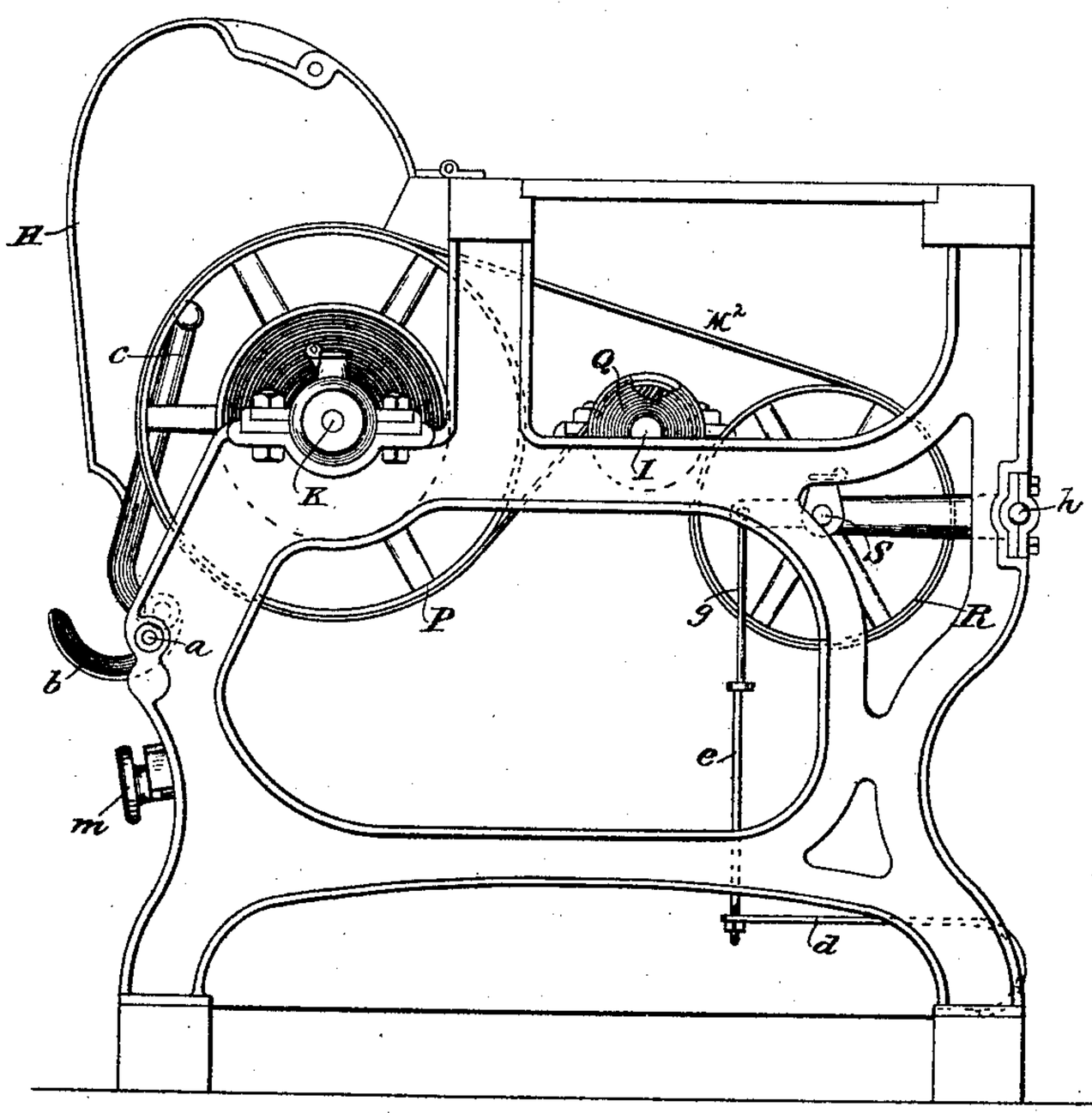
Fig III



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(No Model.) 4 Sheets—Sheet 4.

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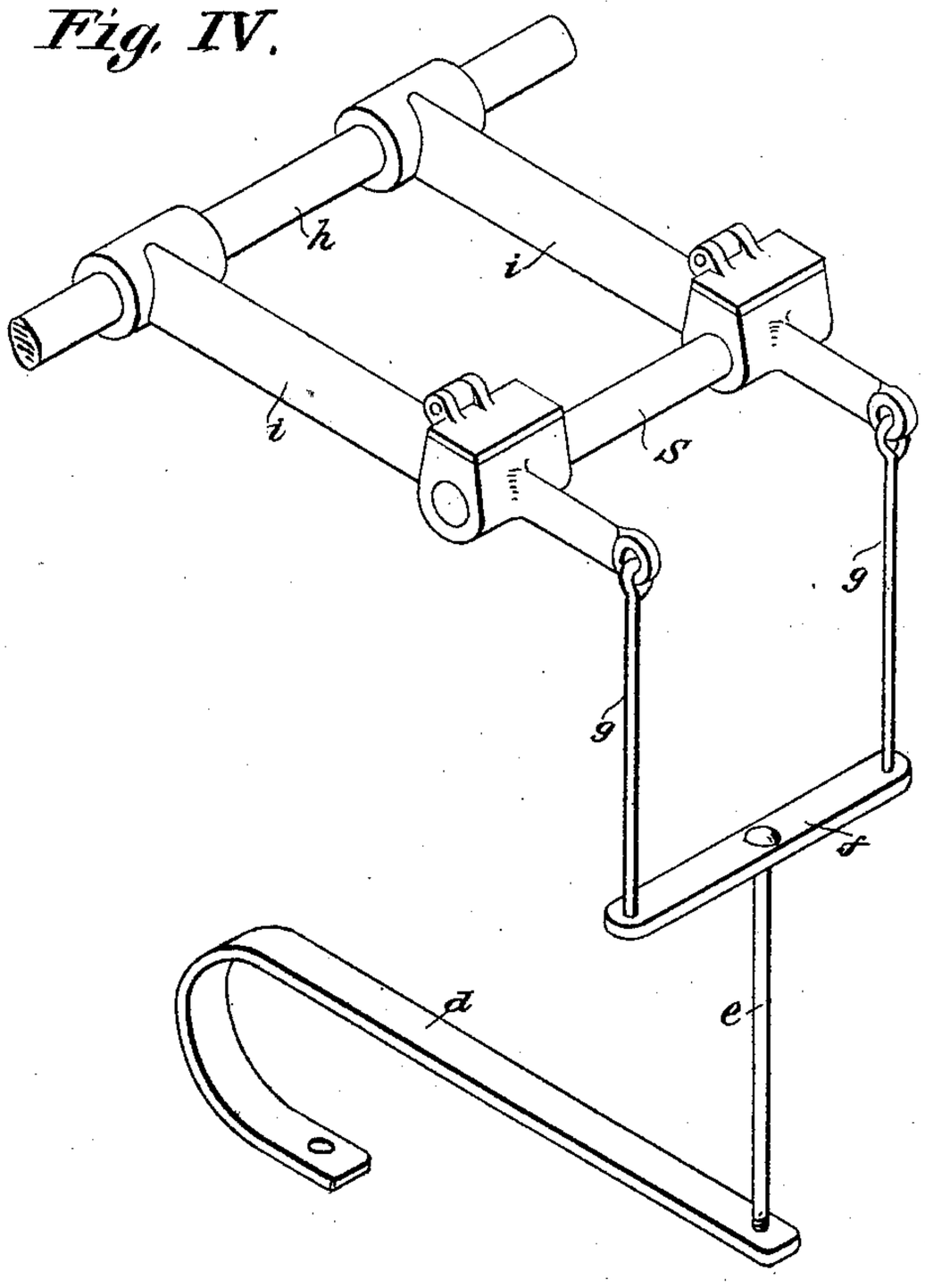
BELT TIGHTENER FOR COTTON GINS.

No. 437,241. Patented Sept. 30, 1890.

Fig. IV.



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Inventor;

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UNITED STATES PATENT OFFICE.

WILLIAM S. REEDER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE KINGSLAND & DOUGLAS MANUFACTURING COMPANY, OF SAME PLACE.

BELT-TIGHTENER FOR COTTON-GINS.

SPECIFICATION forming part of Letters Patent No. 437,241, dated September 30, 1890.

Application filed September 26, 1887. Serial No. 250,711. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. REEDER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Belt-Tighteners for Cotton-Gins, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improvement in cotton-gins of the Whitney type, the object of the same being to improve a certain special feature of such gins.

The invention will be best understood by referring to the accompanying drawings, in which—

Figure I is an end elevation of a Whitney cotton-gin having my improvement applied thereto. Fig. II is a side elevation thereof. Fig. III is an end elevation, the same as Fig. I, with a portion of the apparatus removed, and Fig. IV an isometric projection of the tightener-pulley frame to which my invention relates.

The same letters of reference refer to the same parts throughout the several figures of the drawings.

F is a roller that bears upon the condenser in the ordinary way.

The power that drives the machine is applied to a pulley T, Fig. II, which rotates the shaft K, passing through the same, and carrying the saws. Upon the shaft K to one side of the machine, Figs. I and II, is a sprocket-wheel X, over which passes a sprocket-chain or link-belt M^4 to another sprocket-wheel N of larger diameter mounted upon a shaft O, upon which is a small sprocket-wheel W, which drives a second sprocket-chain M′, that passes around another sprocket-wheel M of larger diameter fast to the condenser-shaft L. A tightening-pulley *o*, carried by the frame of the gin, is provided to keep the sprocket-chain taut. The gearing described reduces the speed of the condenser and imparts a positive motion thereto.

k k (see Fig. II) are rods at each side of the apparatus by which the mote-board is adjusted. These rods are provided on their outer ends with thumb-nuts *m*, by which they are manipulated.

H is the breast or seed board, which carries the grate U. The seed-board or breast H and the grate U may be raised and lowered in position again by suitable means. This means in the present instance consists of a shaft *a*, journaled in metal pieces fastened to the lower part of the seed-board, a curved arm *b*, fast to one end of said shaft, adapted to bear against a fixed part of the gin, and a handle *c*, extending from the opposite end of the shaft, which handle is within easy grasp of the ginner. (See Fig. II.)

The parts above enumerated make no part of my invention.

Q is a double-flanged pulley placed upon the brush-shaft I. This double-flanged pulley is driven by a belt from a large pulley P on the brush-shaft K. (See Figs. I and III.) The belt has a tightening or idle pulley R, mounted on a shaft S, carried by a frame swiveled upon a shaft *h*, journaled in a box supported by the frame of the machine. These features are duplicated at each end of the machine, as shown in Fig. II, so as to drive the brush-cylinder shaft at each end. The idler or tightening pulley frame is shown more clearly in Fig. IV. It has a spring *d* bolted to the sill of the machine, which spring is connected to the yoke *f g g* of said frame by a temper-screw *e*, which regulates the tension of the driving-belt as the screw is manipulated in one or the other direction. The yoke is connected to two arms *i i*, which sustain the shaft S, and are themselves fast to the shaft *h*. The effect of the double-flanged pulley is to guide the brush-cylinder driving-belt. (See Fig. III, where it is represented broken away to more clearly illustrate the same.) The driving-belt is apt at times from various causes to run crooked or to one side and rub against the arms *i i* of the tightening-pulley frame, producing retarding friction, whereas with the double-flanged pulley the friction produced by the belt running to one side becomes driving friction against the sides or flanges of said pulley. The pulley R not only acts as an "idler" but also as a tightener pulley to said belt, the tension of the belt being regulated by means of the temper-screw and spring

d, which latter is of great advantage, as it will yield readily to any uneven places in the belt or pulley caused by any imperfection in either or by the adhesion of any foreign substance—such as lint, cotton, seed, dirt, or resin, (often used to prevent belts from slipping,)—which sometimes occur. Some ginners weight the tightener or idle pulley frame to prevent the slipping of the brush-belt. This, however, does not effect the desired result. The belt having a high speed, any unevenness in it or the pulley will cause the frame and weight to bound upward and slacken the belt, causing it to slip and perhaps run off. When the weight again drops, it puts a sudden strain on the belt that is injurious to it. It also produces an irregular speed of the brush, which is objectionable, in that it will not produce so good a sample or yield so great a quantity of lint per day as an unvarying speed. Some others use a frame with a ratchet and pawl. This is also objectionable, because it is unyielding and will injure the belt, and if there be any unevenness the belt will be proportionately tight and slack. My use of a spring for this purpose overcomes these difficulties, the same performing a function which the foregoing will not.

I am not aware that a spring and a double-flange pulley with a spring-actuated tightener pulley have ever been employed as described previous to my invention.

Having now fully set forth my invention, and described the advantages thereof, what I desire to claim, and secure by Letters Patent of the United States, is—

1. In a cotton-gin, the combination, with the power-shaft pulley and brush-shaft pulley, of an idler-wheel, a belt connecting the power-shaft pulley and idler-wheel and passing over the brush-shaft pulley, a supporting-frame for the idler-wheel having a rear bar *h* journaled in the frame of the gin, a cross-bar S, upon which the idler-wheel is mounted, side bars *i i*, a yoke swiveled to and depending from the outer ends of the bars *i i*, and a spring connected at one end to said yoke and at the other end to the sill of the gin, substantially as described.

2. In a cotton-gin, the combination, with the power-shaft pulley and brush-shaft pulley, of an idler-wheel, a belt connecting the power-shaft pulley and idler-wheel and passing over the brush-shaft pulley, a supporting-frame for the idler-wheel having a horizontal rear bar *h* journaled in the frame of the gin, a cross-bar S, upon which the idler-wheel is mounted, side bars *i i*, a yoke swiveled to and depending from the outer ends of the bars *i i*, a spring connected at one end to the sill of the gin, and an adjusting tension-bar connecting the other end of the spring to the yoke, substantially as described.

In testimony whereof I have hereunto set my hand and seal, this 21st day of September, 1887, in the presence of two subscribing witnesses.

WILLIAM S. REEDER. [L. S.]

Witnesses:
GEO. H. KNIGHT,
T. P. RITCHIE.