

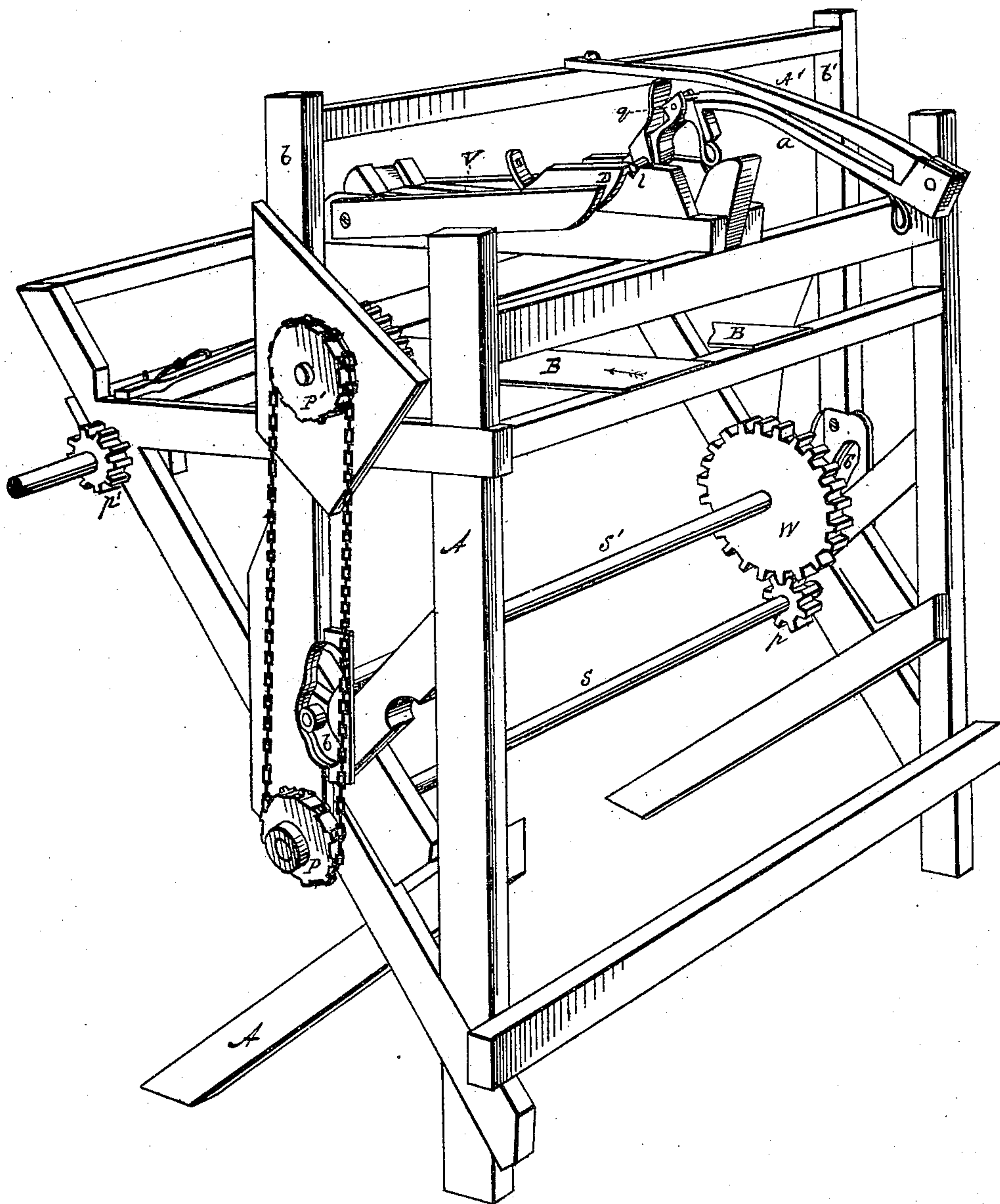
5 Sheets—Sheet 1.

E. M. THOMPSON.  
GRAIN-BINDER.

No. 175,782.

Patented April 4, 1876.

*Fig. 1.*



*Witnesses:*

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David. G. Weems.

*Inventor:*

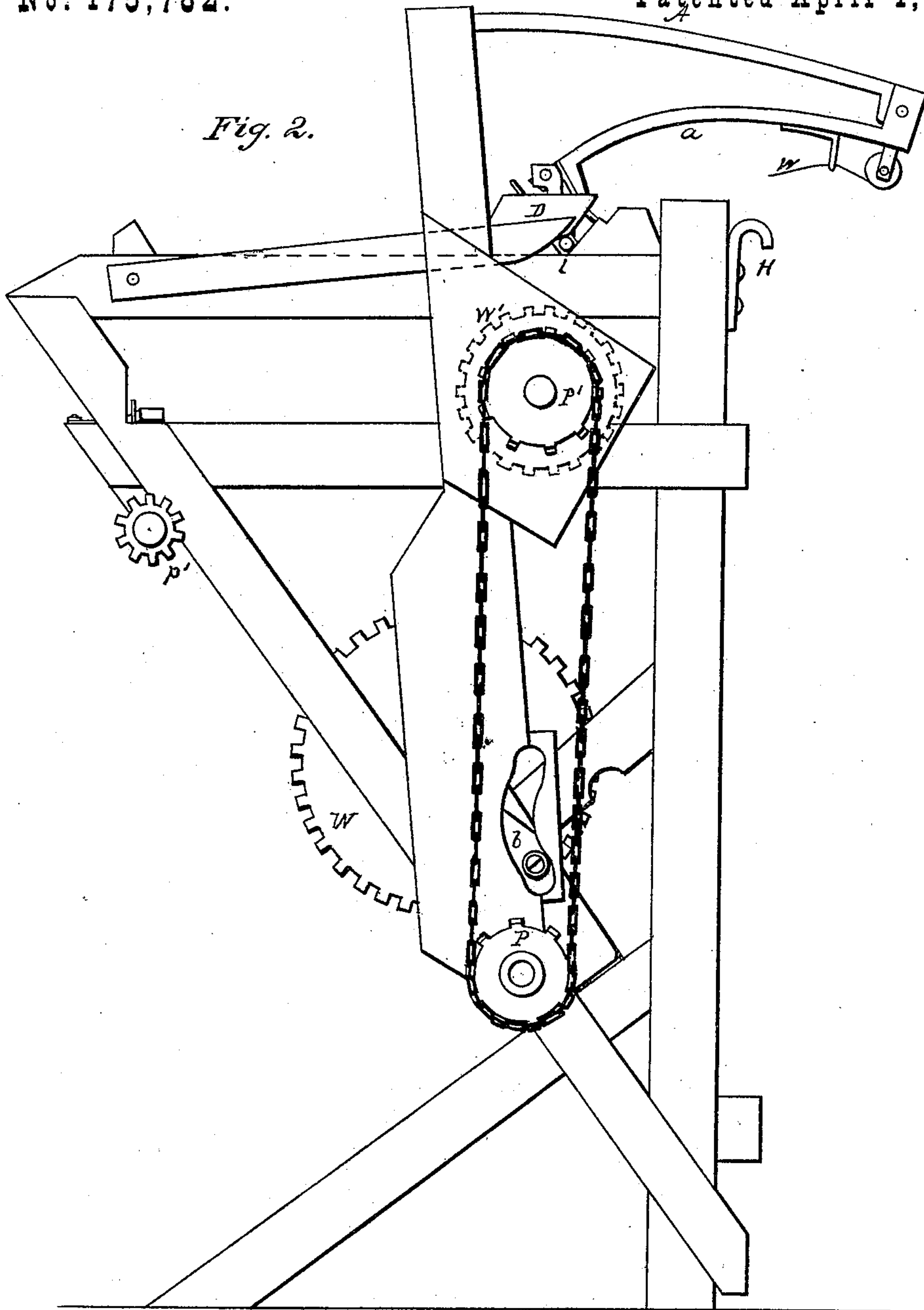
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Fig. 2.



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By

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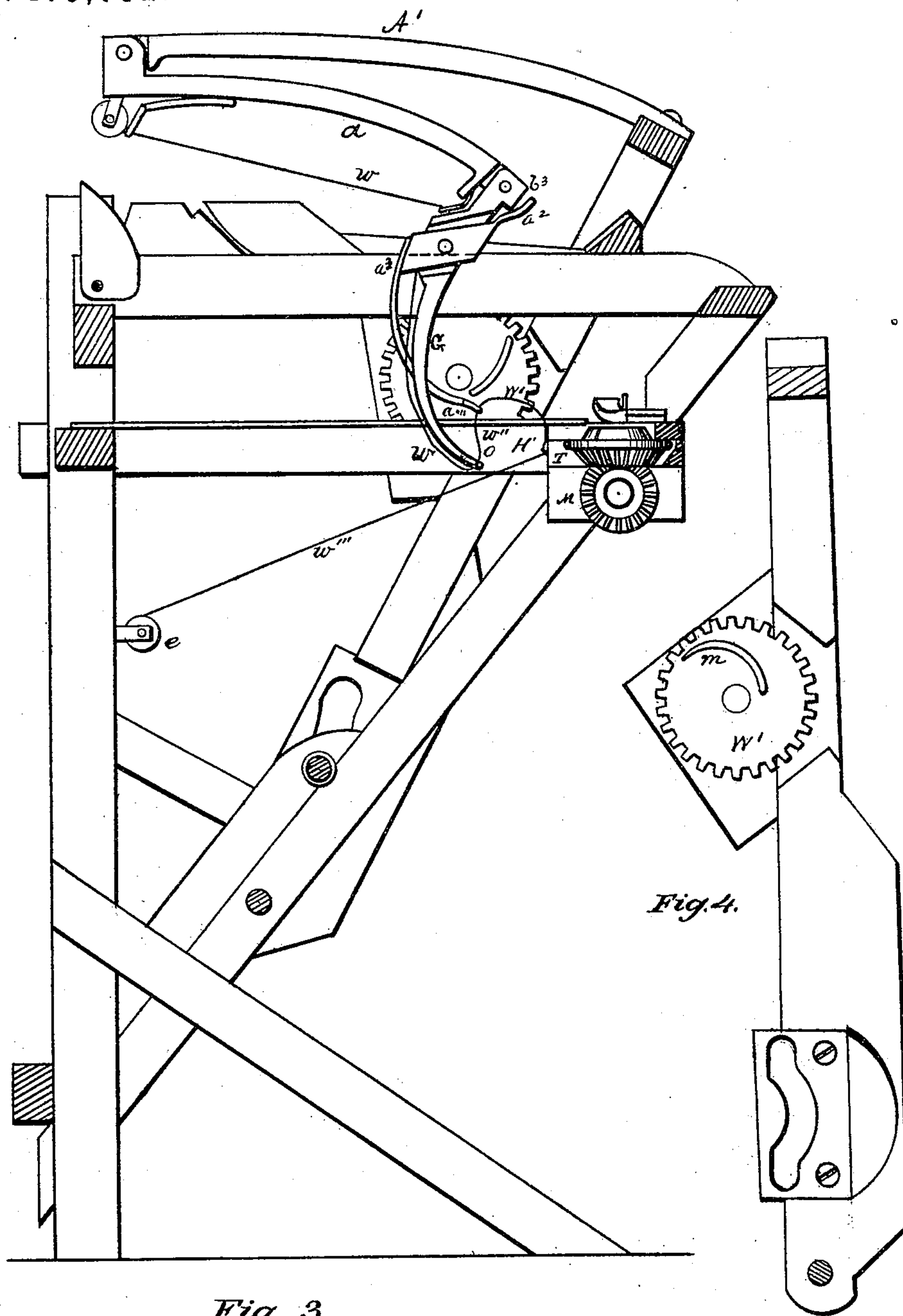
per

A. H. Evans & Co. Attorneys

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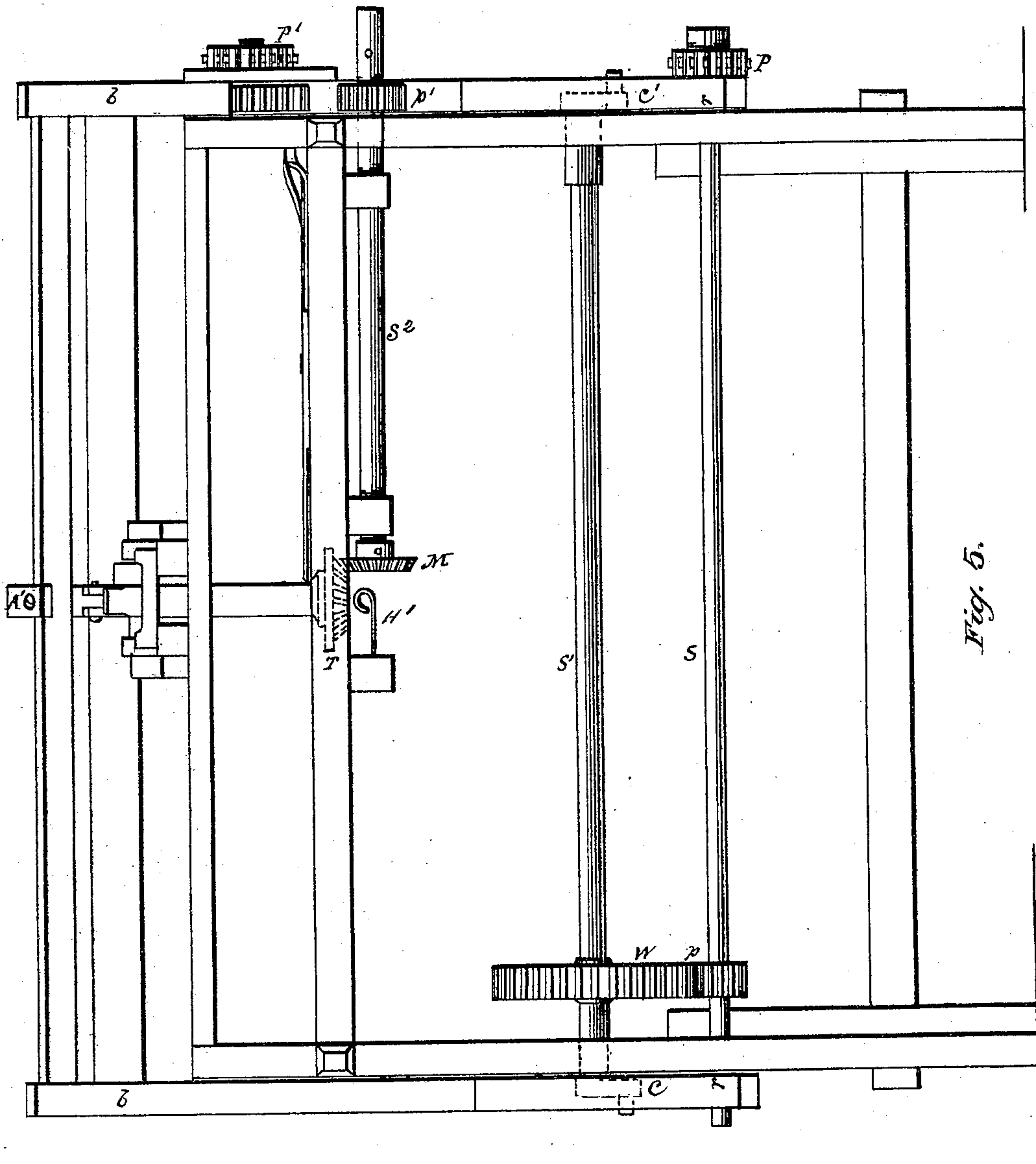


Fig. 5.

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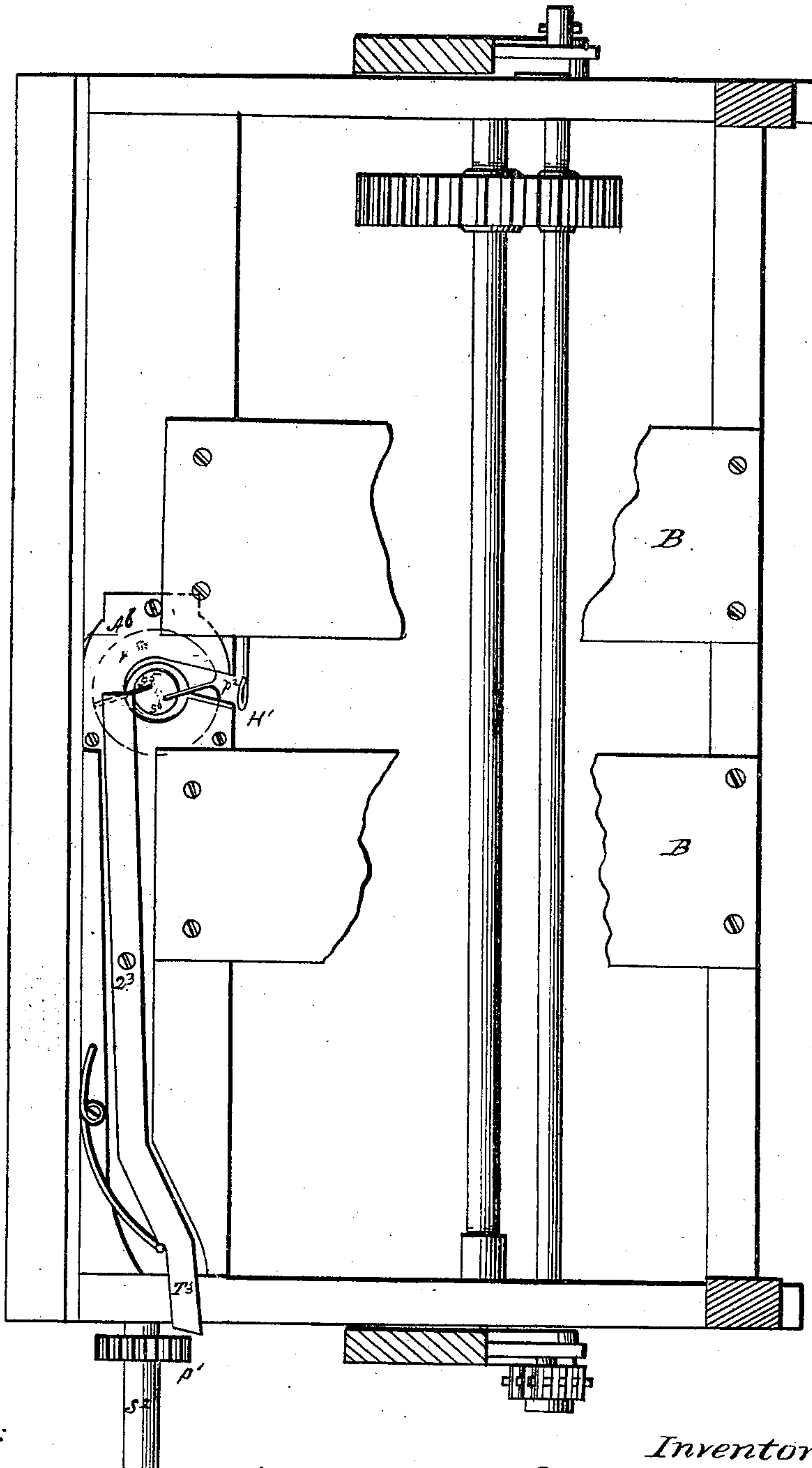


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Fig. 6.



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# UNITED STATES PATENT OFFICE.

EVERT M. THOMPSON, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. 175,782, dated April 4, 1876; application filed February 17, 1876.

*To all whom it may concern:*

Be it known that I, EVERT M. THOMPSON, of Chicago, Illinois, have invented certain new and useful Improvements in Binding Attachments for Reapers; and I do hereby declare the following to be a full, clear, and explicit description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my invention. Fig. 2 is an end elevation. Fig. 3 is a vertical cross-section through  $x x$ . Fig. 4 is a view of the inner side of the arm  $b$ . Fig. 5 is a front elevation. Fig. 6 is a horizontal section through  $y y$ .

My invention relates to improvements in binding attachments; and it consists in the several combinations of devices hereinafter explained and claimed.

To enable others skilled in the art to make and use my invention, I will proceed to describe the exact manner in which I have carried it out.

The frame-work  $A$ , for the support of the various operative parts of the machine, may, for convenience, be made partially triangular, as shown in Fig. 1, and be provided with hooks  $H$ , resting on a horizontal bar, in such a manner as to admit the entire binder being moved, so as to throw the binding material on the middle of the bundle of grain to be bound, whether the grain be short or long. Motion is transmitted from the reaper to the binder by means of suitable pulleys and bands connecting with the pulley  $P$ .

The grain is raised from the platform, on which it falls as cut by the sickle, by the usual conveying and elevating devices, and is passed onto the bed  $B$  in the direction of the arrow. The bed  $B$  may be formed of slats passing transversely from one side of the frame-work to the other, or of thin metals or boards; but through the bed is formed a slot or opening for the passage of the point of the gatherer and compressor  $G$ , (see Figs. 4 and 6,) as the point of the gatherer and compressor passes below the surface of bed as it moves forward to its work.

The pulley  $P$  imparts motion to the shaft  $S$ , and through it to the wheel  $W$  by means of the pinion  $p$ ; thence to the shaft  $S^1$  and

cranks  $c c'$ , (see Fig. 5,) and thence to the oscillating arms  $b b^1$ . These arms give motion to the arms  $A^1 a$ , and through them to the gatherer and compressor  $G$ . (See Fig. 4.) The twister  $T$  receives its power and motion through the miter  $M$  and pinion  $p'$  on the shaft  $S^2$ , the pinion  $p'$  receiving motion from the wheel  $W'$  when this wheel comes in contact with the pinion at the time the arms  $b b^1$  are in the left extreme of their oscillation. The wheel  $W'$  receives its motion from the pulley  $P'$ , connected by a chain-band with pulley  $P$ .

The arms  $b b^1$  rest on the shaft  $S$  at  $r r$ , on which as a center they oscillate. The cranks  $c c'$ , rotating on the shaft  $S^1$ , and working in the cam-grooves in the arms  $b b^1$ , cause the arms to oscillate with a variable movement, and permit them in their left extreme oscillation to rest long enough for the wheel  $W'$  to turn the twister  $T$  (through the pinion  $p'$ , shaft  $S^2$ , and miter  $M$ ) the desired number of times. But as the arms  $b b^1$  oscillate, they impart their motions to the arms  $A^1 a$ , which control the movements of the collector and compressor  $G$ , which in its leftward motion descends, its bearing and pivot  $l$  passing under the pawls  $D$ , which raise from the pressure of  $l$  against the inclined faces of the pawls, and along the guides  $V$  to its extreme left position; the lower point of the gatherer and compressor  $G$ , in its leftward movement, extending beneath the bed  $B$ , and sweeping all the grain on the bed toward the twister  $T$ .

As the arms  $b b^1$  recede from their extreme left position, the arm  $a$ , acting upon the gatherer  $G$  at the joint  $q$ , causes it to recede from the twister, and at the same time, aided by the resistance of the grain deposited on the bed in the rear of the gatherer, the latter rotates upon the pivot  $l$ ; the part at  $q$  following to the right, and passes again to the right of the grain without disturbing it.

In receding from its extreme left position, the pivot  $l$  passes up on the pawl  $D$ , there attaining its highest position; and on reversing the movement of the arms  $b b^1$  the arm  $a$  causes the gatherer to rotate on its pivot and resume its vertical position, when it immediately descends, the lower point passing down through the grain. It is intended that when



G is in its highest position its point may pass downward and rightward without interfering in any way with the grain on the bed, preparatory to its leftward movement to gather and compress the grain.

Through the point of the gatherer, at *o*, is an eye for the passage of the wire *w w' w'' w'''*, which runs through suitable guides from the spool located at any desirable point along the arm *a*, down the back of the gatherer G, through the eye *o*, and over the catch H', to the spool *e*. The straddler *a<sup>2</sup> a<sup>3</sup> a''''* vibrates on the pivot *l* when G attains its extreme left position. The straddler at *a<sup>2</sup>* bears against the stop *b<sup>3</sup>*, causing that part of the straddler *a''''* to straddle the twister, thus forcing the wire against the twister, and insuring the wires being caught in the slots S<sup>5</sup> S<sup>6</sup>, Fig. 6.

The twister revolves in the direction of the arrow, Fig. 6, and it is intended that when the wire is pressed against the edge of the twister at *p<sup>2</sup>* the slots will catch it; and by means of their peculiar shape, and the peculiar shape of the plate A<sup>6</sup>, incasing the twister on one side, the wires, whether in one or both of the slots, will be conducted to and held near the center of the twister, and away from the imposed miter's teeth.

The catch H' is so constructed that when the gatherer passes leftward it does not obstruct the gatherer; but in the reverse movement it prevents the wire from following the gatherer.

Two spools of wire are used, located at suitable points and feeding out the wires; suitable tension should be used. As the wire on the left of the bundle impinges upon the twister before the wire on the right of the bundle, and as the machine is so timed that the twister makes a half-revolution before the right-hand wire is brought against it, it necessarily follows that the two wires must pass into the two opposite slots in the twister,

thereby insuring a strong tight twist of the ends together.

On the rear of the wheel W' is secured the cam *m*, which acts upon the end of the cutting-lever T<sup>3</sup>, Fig. 6, and causes it to turn on the pivot 2<sup>3</sup>, and the knife end to pass over and against the upper face of the twister T, in such a way that the twister, in its revolutions, brings the wire against the end of the knife, thereby cutting it off.

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

1. The oscillating gatherer and compressor G, in combination with the arms *b b<sup>1</sup>* and the arms A *a*, substantially as and for the purpose set forth.

2. The oscillating arms *b b<sup>1</sup>* in combination with the wheel W', pinion *p'*, miter M, and twister T, substantially as and for the purpose described.

3. The twister T, provided with the slots, not radial, as shown, in combination with the gatherer G, provided with a straddler, constructed to operate substantially as and for the purpose set forth.

4. The combination of the compressor and straddler *a<sup>2</sup> a<sup>3</sup> a''''*, constructed to operate substantially as and for the purpose described.

5. The pawls D, for elevating the gatherer in its retrograde movement over the grain, and permitting the descent of the gatherer in its forward movement, substantially as set forth.

6. The twister T, constructed with the slots, not radial, and the peculiar shape shown, in combination with the plate A<sup>6</sup>, substantially as and for the purpose set forth.

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Witnesses:

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JAMES E. HAYES.