

(No Model.)

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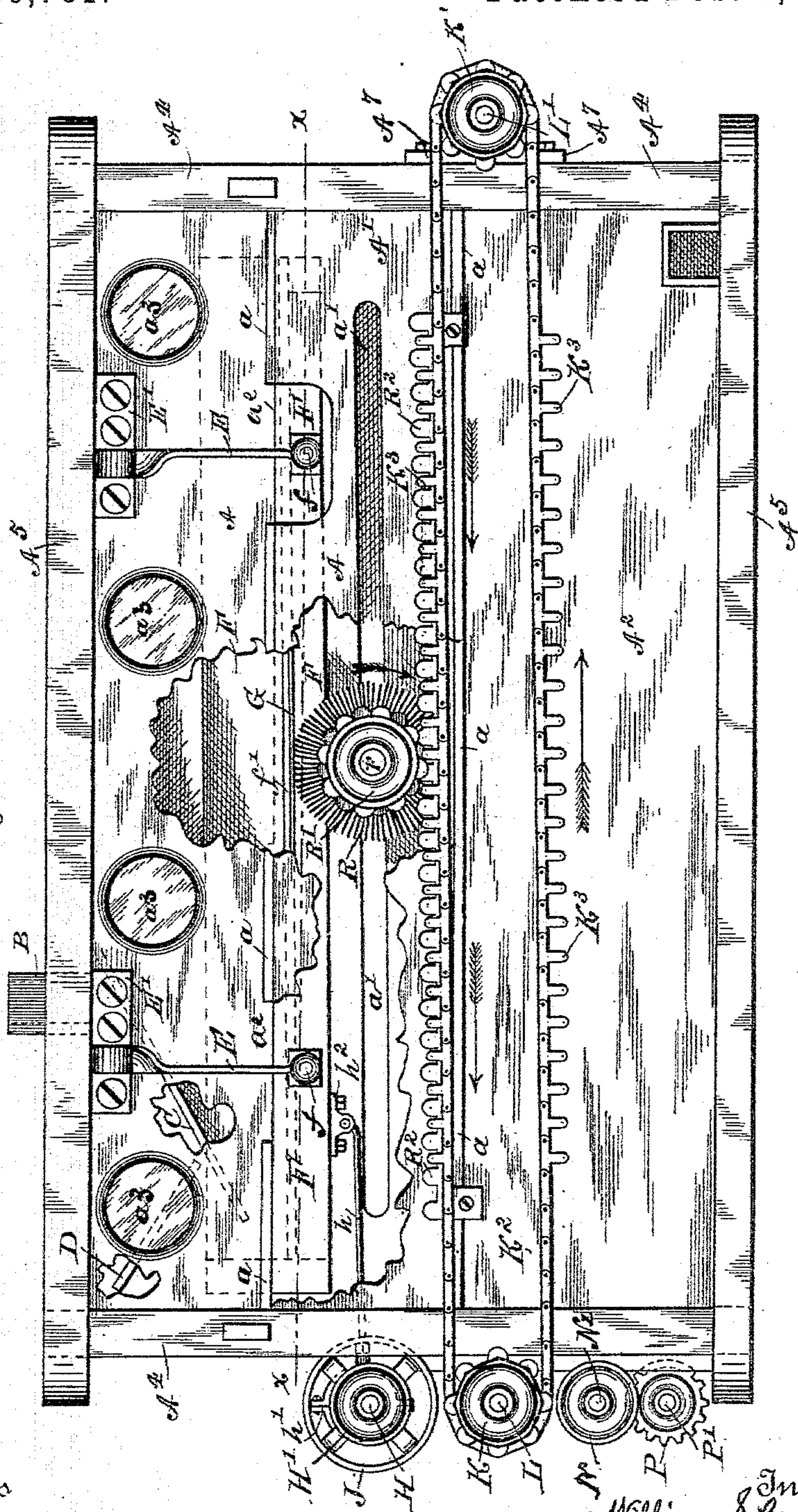
W. S. PARKER, D. H. BLOOD & O. F. TOWER.

SHAKING BOLT.

No. 356,781.

Patented Feb. 1, 1887.

Fig. 1.



Witnesses

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Inventors

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Fig. 3.

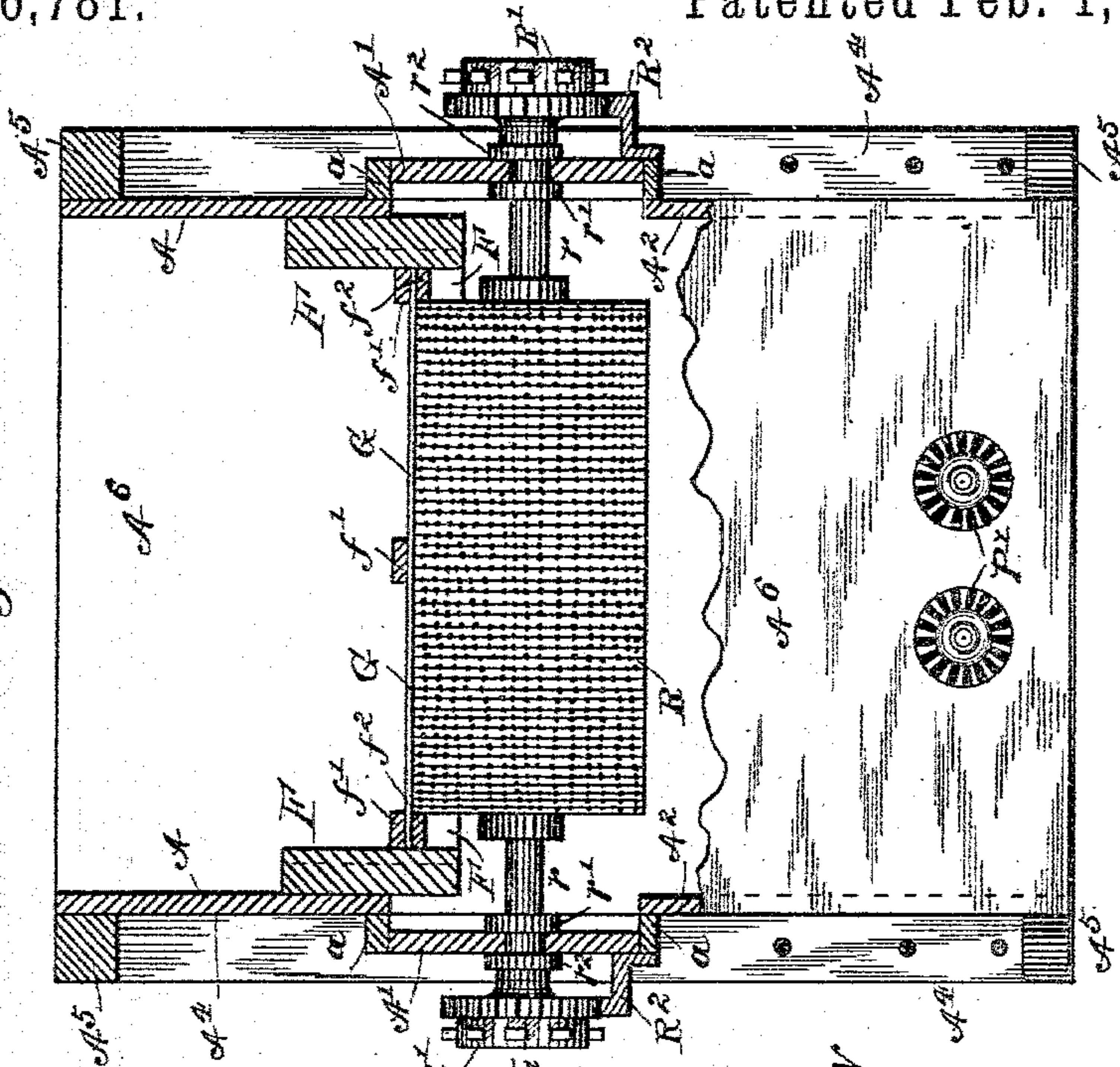
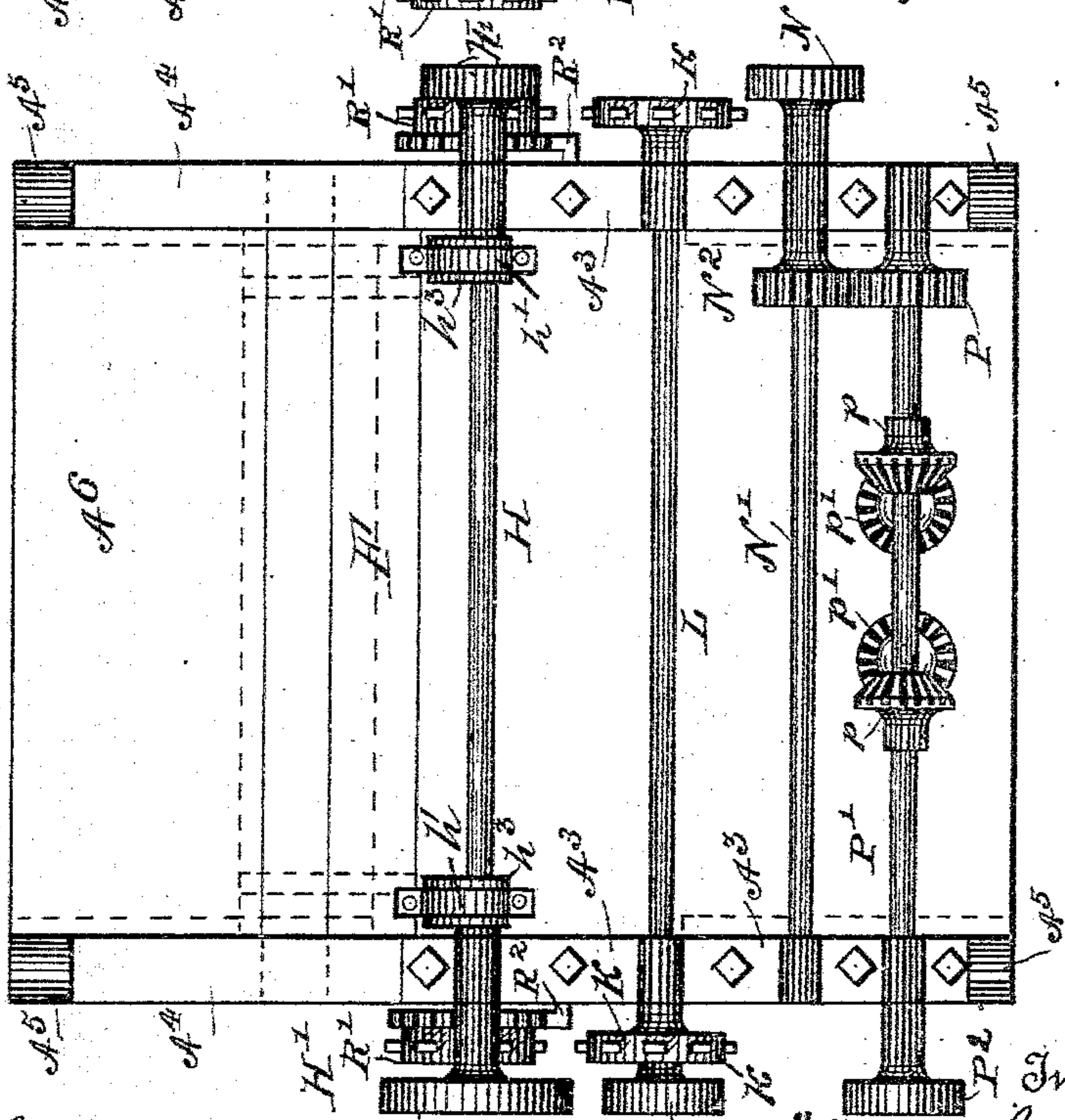


Fig. 2.



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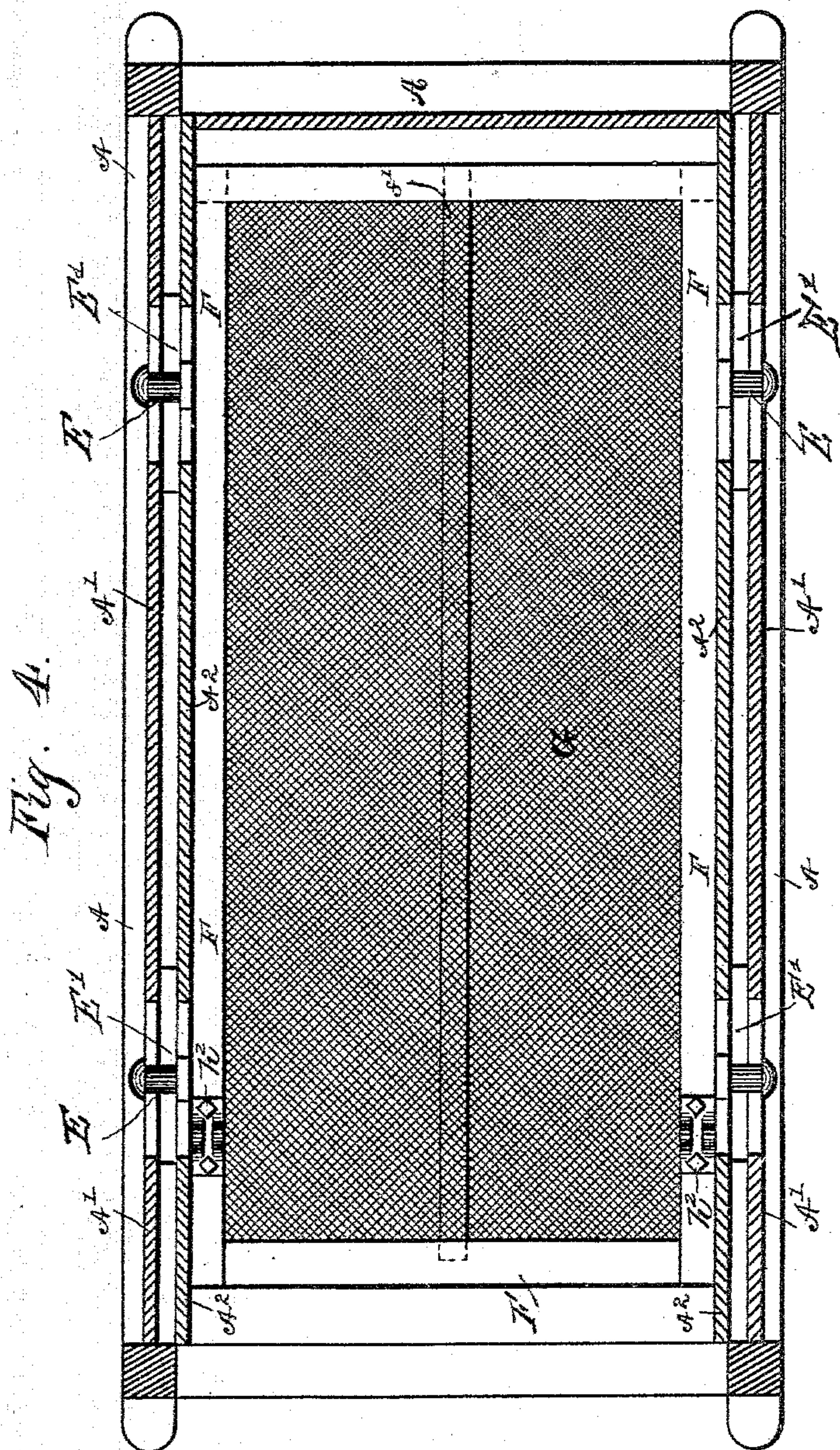
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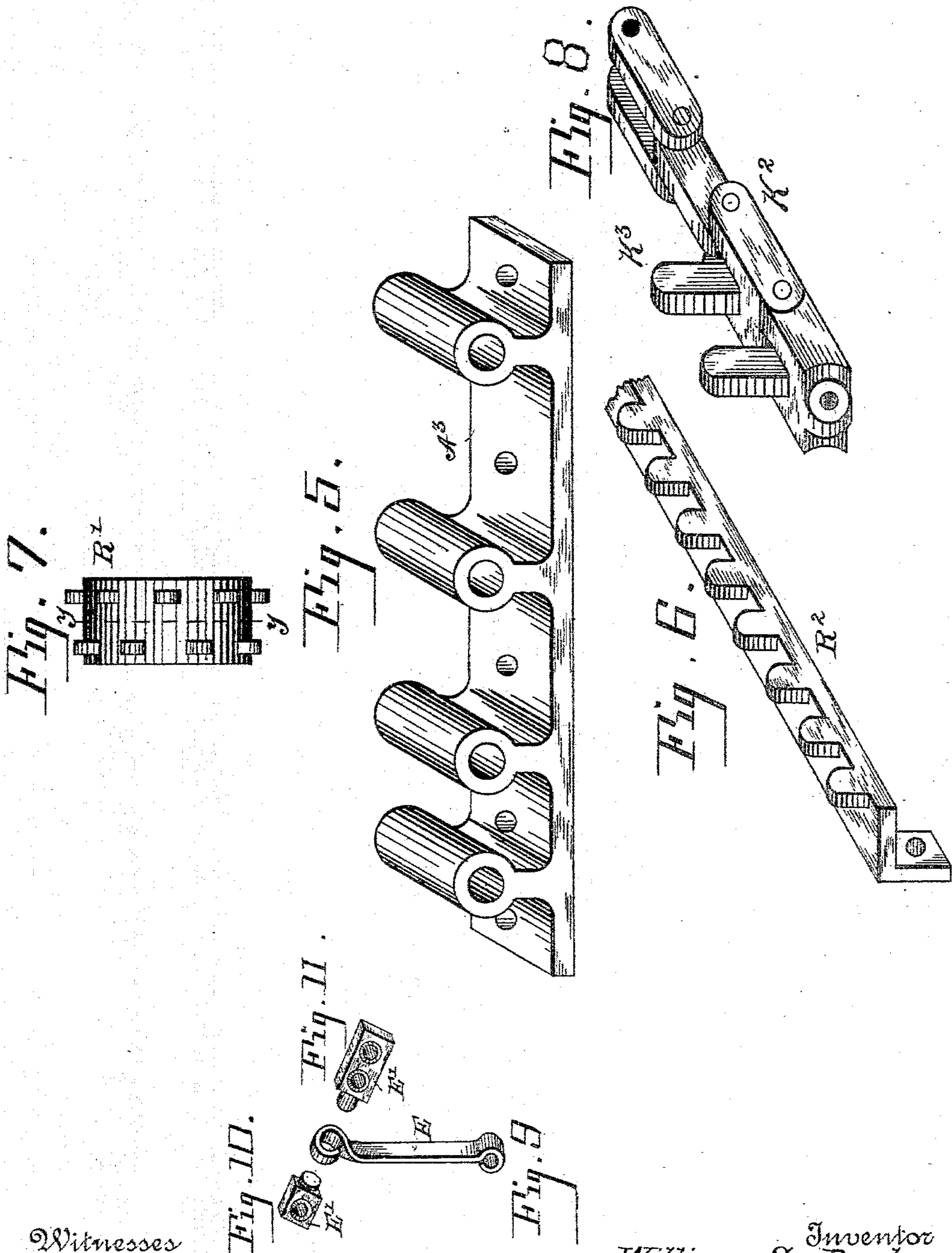
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UNITED STATES PATENT OFFICE.

WILLIAM S. PARKER, DANIEL H. BLOOD, AND OTIS F. TOWER, OF
LAINGSBURG, MICHIGAN.

SHAKING BOLT.

SPECIFICATION forming part of Letters Patent No. 356,781, dated February 1, 1887.

Application filed April 17, 1886. Serial No. 199,211. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM S. PARKER, DANIEL H. BLOOD, and OTIS F. TOWER, citizens of the United States of America, residing at Laingsburg, in the county of Shiawassee and State of Michigan, have invented certain new and useful Improvements in Shaking Bolts, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this improvement is the construction of a machine that is adapted to rapidly and efficiently bolt flour through a flat sieve. These results are attained by the mechanism illustrated in the drawings, forming part hereof, in which the same letters of reference denote the same parts in the different views.

Figure 1 is a side elevation, with the parts broken away, representing a shaking bolt embodying the features of my improvement. Fig. 2 is a front elevation with parts removed that are fully shown in other figures. Fig. 3 is an end elevation, partly in section and with parts removed and broken away. Fig. 4 is an inverted longitudinal section taken on the line x of Fig. 1, more fully showing the construction and relation of the parts. Fig. 5 is a perspective representation of one of the brackets. Fig. 6 is a perspective representation of a section of one of the rack-bars fixed to side walls. Fig. 7 is a front elevation of one of the sprocket-wheels on brush-shaft. Fig. 8 is a perspective representation of a portion of one of the sprocket-chains. Fig. 9 is a perspective representation of one of the spring-hangers. Figs. 10 and 11 are perspective representations of the blocks from which the spring-hangers are suspended.

$A A' A^2 A^4 A^5 A^6 a a$ indicate the inclosing and supporting frame, of which $A A' A^2 a a$ are the side walls. $A^4 A^5$ are upright and longitudinal frame-beams, and $A^6 A^6$ are the end walls. The parts $A' A'$ of the side walls are suitably connected to the upright beams A^4 out of line with the side wall parts, $A A^2$, as fully shown in Fig. 3, and are connected with such parts by means of strips $a a$, for preventing the openings in the side walls, that would otherwise occur from the position of the parts $A A^2$. The parts A' are each provided with a slot, as shown at a' in Fig. 1, for a purpose hereinafter set forth.

The frame-walls at both sides of the machine may be provided with windows, as shown at a^3 .

B is a spout for introducing into the machine the material to be bolted.

C is an inclined board, along which the flour moves from the spout to the bolt. D is an oppositely-inclined board, with the lower edge adjacent to the board C, and adapted to spread the material passing along the board C to the bolt. The boards C and D are secured to the wall parts A A by any suitable means.

E' E' represent blocks fixed either to the wall parts A A or to the longitudinal frame-beams A^5 .

E E are spring-steel hangers suspended from the blocks E' E', all which are rounded at their inner ends, as shown in Figs. 12 and 13, which correspond in size with and are set into eyes formed at the upper ends of the hangers E E, as shown in Fig. 11, which are also provided with eyes at their lower ends, through which they are connected to the bolt-frame F by means of pins f , projecting therefrom beyond the outer sides of the wall parts A A.

The wall parts A' are cut away, as shown at $a^2 a^2$, Fig. 1, for the purpose of connecting the spring-hangers E E with the pins f , projecting from the bolt-frame F, and for the purpose of clearing the reciprocating motion of the spring-hangers hereinafter explained.

The spring-hangers E E are of the same length, but are connected to the bolt-frame F, in a manner to suspend the same in an inclined position, by means of the pins f , which project through the lower eyes of the spring-hangers and which are fixed to the frame F at different distances from the top of the same, substantially as shown in Fig. 1.

The under part of the bolt-frame F is provided at each side with eye-plates adjacent to its front ends, as shown at h^2 , Fig. 1, to which are pivotally connected rods h , which are also suitably connected to yokes h' of eccentrics h^3 on the driving-shaft H, journaled to brackets A^3 , (more fully shown in Fig. 5,) and which are fixed to the inclosing-frame in the ordinary manner by bolts, as shown.

H' is a driving-pulley on shaft H, which is provided at its end opposite to the pulley H' with a counter-pulley, J.

K K' represent ordinary sprocket-wheels

fixed to both ends of shafts L L', located at opposite ends of the inclosing-frame. The shaft L has bearings in integral projections of the brackets A³ at the front end of the machine, and the shaft L' is supported by suitable brackets fixed to the rear end of the frame, as indicated at A' in Fig. 1.

K² represent sprocket-chains arranged to operate in connection with sprocket-wheels K K' at both sides of the inclosing-frame. The chains K² are provided with two opposite series of links having arms K³ and interposed portions consisting of plain links without arms, for a purpose hereinafter explained. The peculiar construction of these sprocket-chains is more fully illustrated in Fig. 10.

R' R' represent sprocket-wheels having distinct series of teeth, each of which distinct series of teeth have positions preferably corresponding to the spaces between the opposite series of teeth. These sprocket-wheels R' R' are suitably secured to opposite ends of a transverse shaft, r, having bearings in and supported by the slots a' in the wall parts A', as fully shown in Fig. 3. The shaft r is adapted by shoulders r' r'', at each side of the wall parts A', to strictly maintain its transverse relation to the other parts of the machine.

R is a fine steel wire or bristle brush fixed to the shaft r. The bristles of the brush R are to be of sufficient length to engage positively with the texture of the sieve G in the lower part of the bolt-frame. The sieve G is suitably secured to the lower part of the bolt-frame.

N is a pulley fixed to a shaft, N', having bearings in and supported by integral projections or arms of the brackets A³.

P is a gear-wheel fixed to a shaft, P', having bearings in and supported by integral projections or arms of the brackets A³, and N², (shown in Fig. 2,) is a pinion on the shaft N', arranged to mesh with gear-wheel P on shaft P', which is provided at one end with a pulley, P². The shaft P' is also provided with miter-gears p p, arranged to drive ordinary discharge-conveyers, (not shown,) by means of corresponding gears, p' p', fixed to the conveyer-shafts.

K⁴ is a pulley fixed to the shaft L in line with the pulley P² on shaft P'.

The shaft N' will be put in motion by connection of the pulley N with the pulley H', through a belt. (Not shown.)

The shaft L will be put in motion by connection of the pulley K⁴ on said shaft with the pulley J on shaft H, through a belt. (Not shown.)

By reason of the socket-wheels on the shaft L, motion of the latter will give corresponding movements to the sprocket-chains connecting therewith.

When the machine is put in motion, the bolt-frame F will vibrate more or less rapidly by reason of the hangers E E and its connection with the eccentrics on the shaft H, through the rods h'. The sprocket-chains K² will give rotary motion to the brush R by the arms of the links K³ being brought in contact with

the projections of the sprocket-wheels R' at each end of the brush-shaft r. The sprocket-chains will move in the direction of the arrows shown in Fig. 1, and in addition to giving rotary motion to the brush R will cause the projections of the inner division of the sprocket-wheels R' to consecutively enter the divisions of adjacent corresponding racks, R², suitably secured to the wall parts A', in positions parallel with the slots a', and the shaft of the brush R will thus be made to move along the slots a' and engage with the entire texture of the sieve G. When the links having the arms K³ pass the wheels R' the gravity of the brush R will cause it to roll down the inclined slots a' and racks R² to the front ends of the same, after which the opposite series of link-arms K³ will engage the projections of the wheels R, and repeat the movement of the brush R' described, and thus cause its alternating motion to the opposite ends of the slots a' during the operation of the machine, and the sieve will be prevented from clogging by the continual contact of the brush therewith, and the fine flour will thus be rapidly and effectively separated from the chop, which will be worked toward and over the highest end of the bolt-frame into a suitable receptacle, and thence removed in the ordinary manner.

Having explained the features of our improvement, what we claim as new, and desire to secure by Letters Patent, is—

1. In a flour-bolting machine, the combination of the inclined bolt-frame, a sieve, the inclosing-frame provided with inclined slots in its sides, the rack-bars secured to the inclosing-frame adjacent to its inclined slots and parallel therewith, the sprocket-chains provided at intervals with a series of links having arms, as shown, the means for supporting and operating the same, and the brush provided with gear-wheels having distinct series of teeth for meshing respectively with the racks adjacent to the slots in the side walls and for engaging with and being operated by the sprocket-chain arms, said brush being arranged to roll down the inclined slots after the passage of the link-arms, substantially as specified, for the purpose set forth.

2. In a flour-bolting machine, the sprocket-chains provided at intervals with arms, as shown, and the means for supporting and operating the sprocket-chains, in combination with the brush provided with sprocket-wheels, the racks fixed to the side walls, and the bolt-frame and sieve, substantially as specified, for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM S. PARKER.
DANIEL H. BLOOD.
OTIS F. TOWER.

Witnesses:

GEO. S. CULVER,
B. W. DENNIS.