

(No Model.)

2 Sheets—Sheet 1.

H. LIGHTNER.

MACHINE FOR DRESSING SHINGLES.

No. 358,045.

Patented Feb. 22, 1887.

Fig. 1.

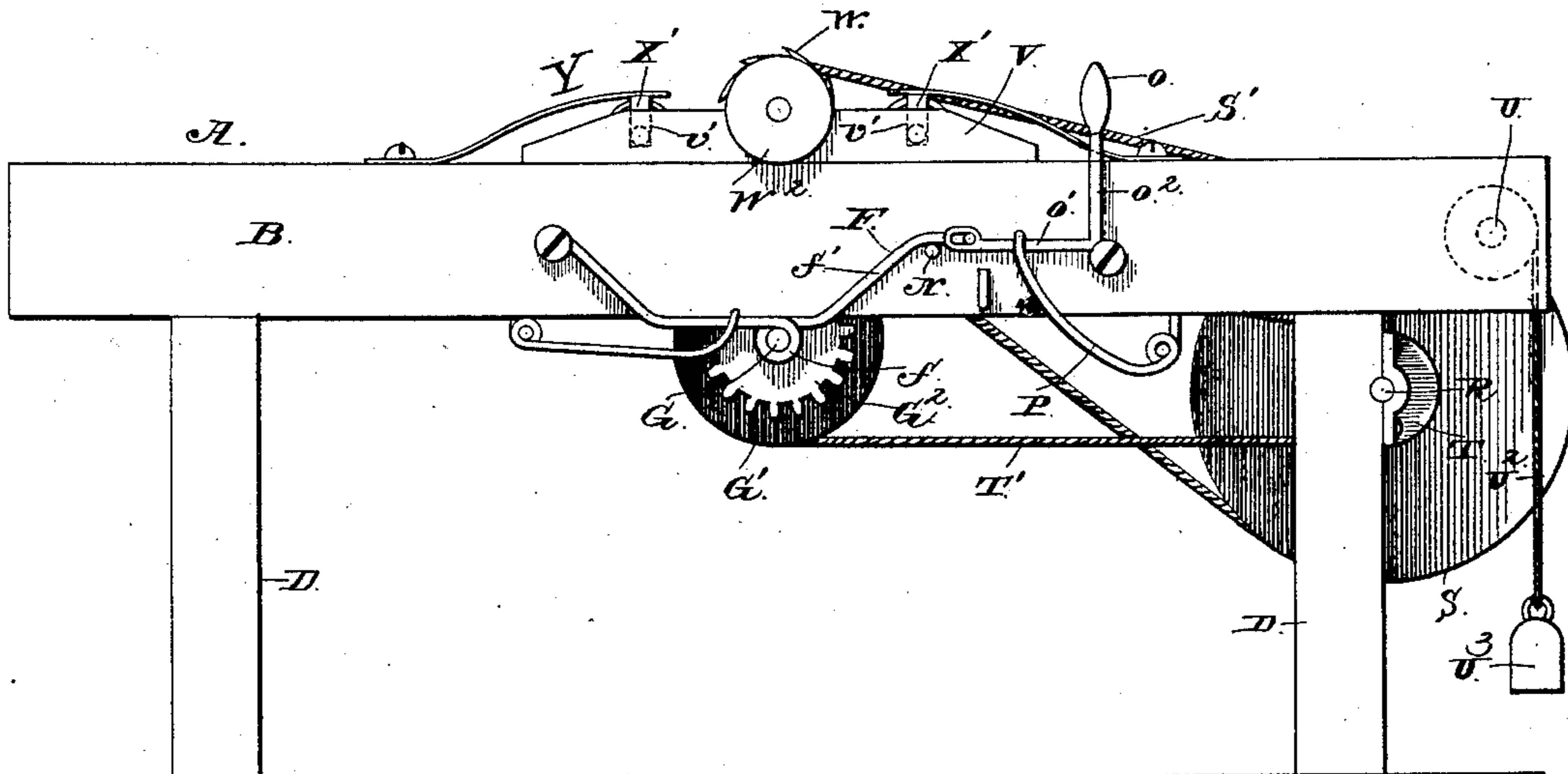


Fig. 2.

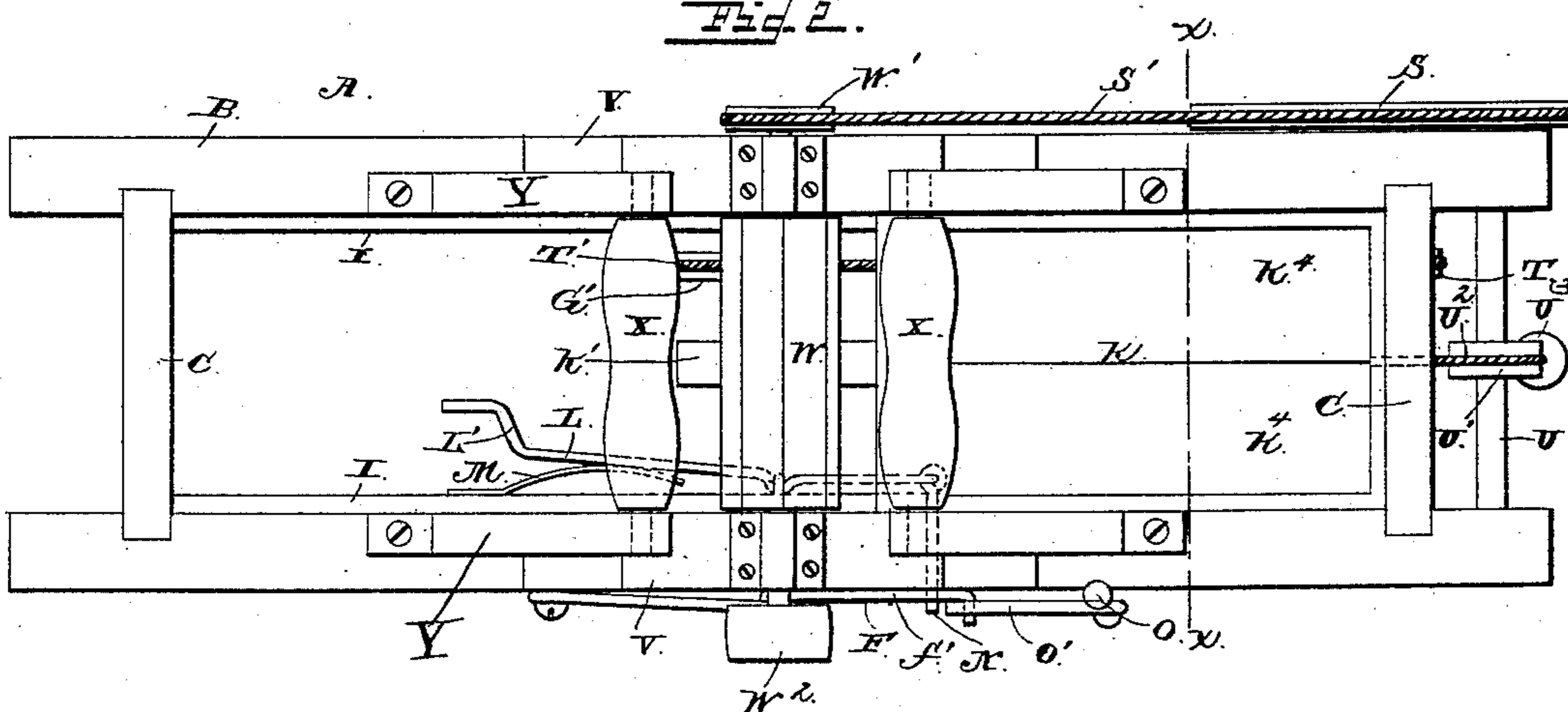
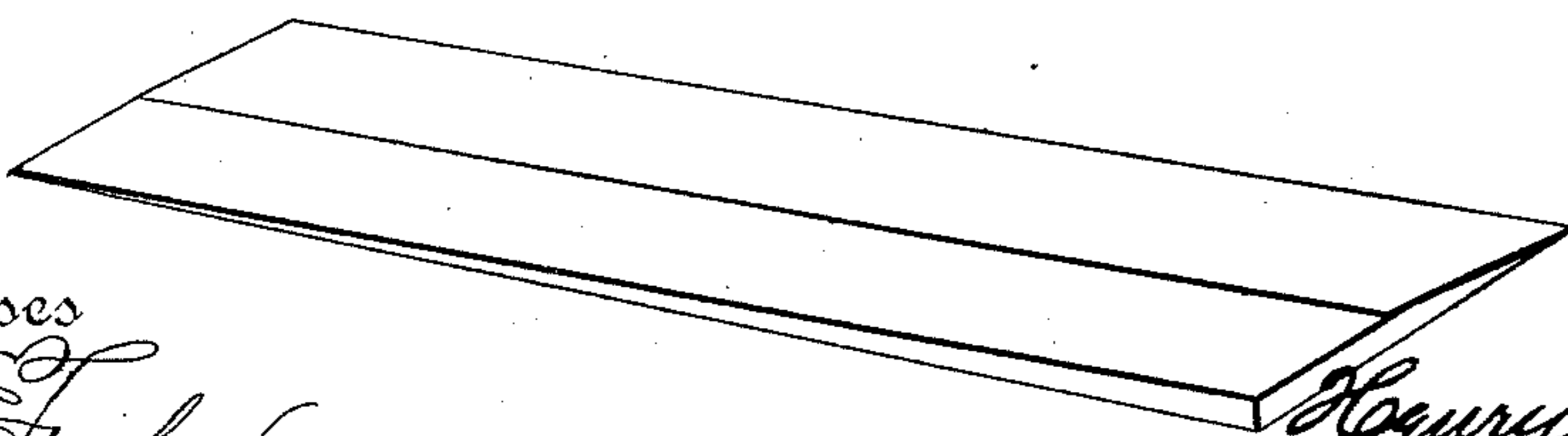


Fig. 3.



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(No Model.)

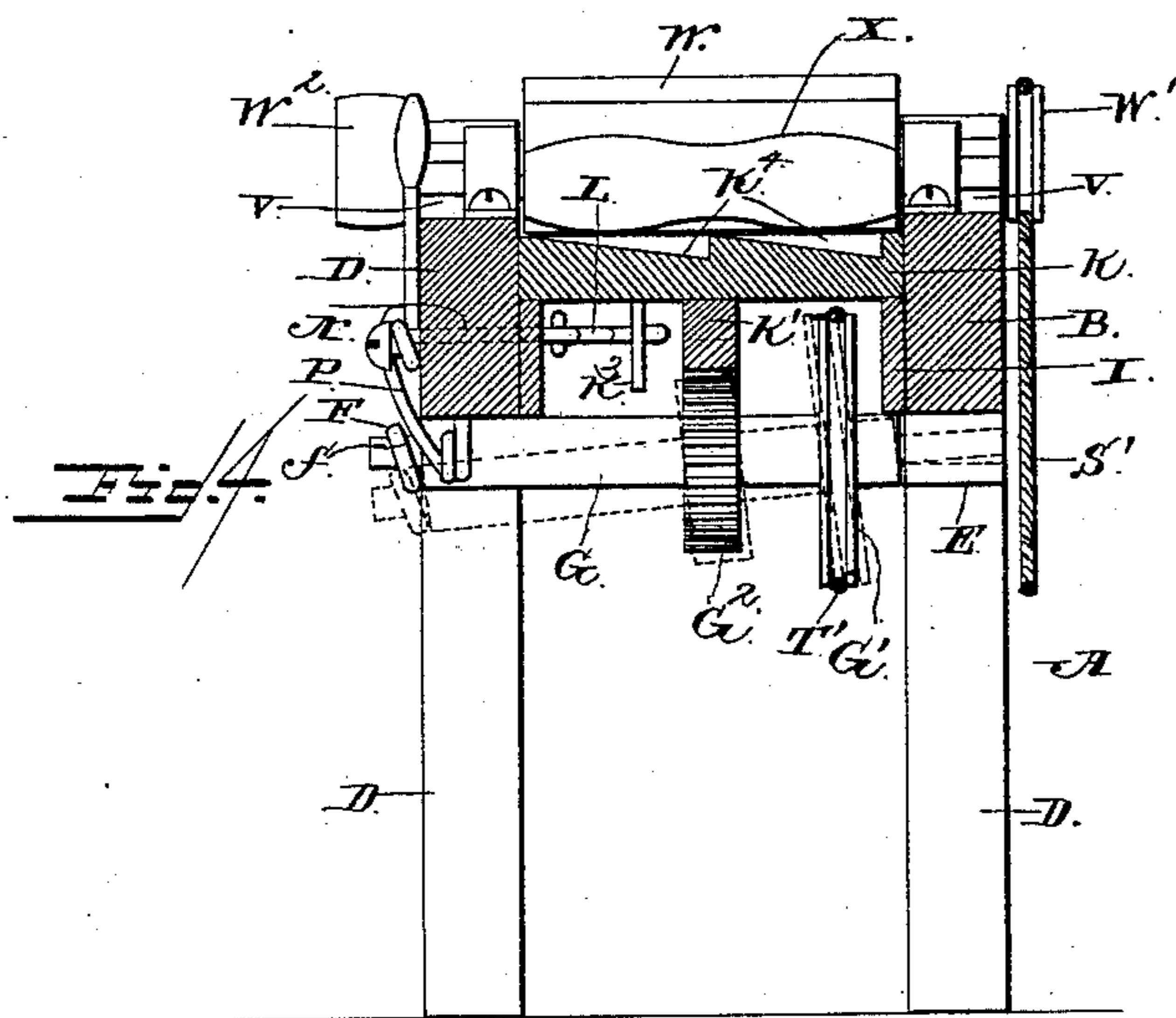
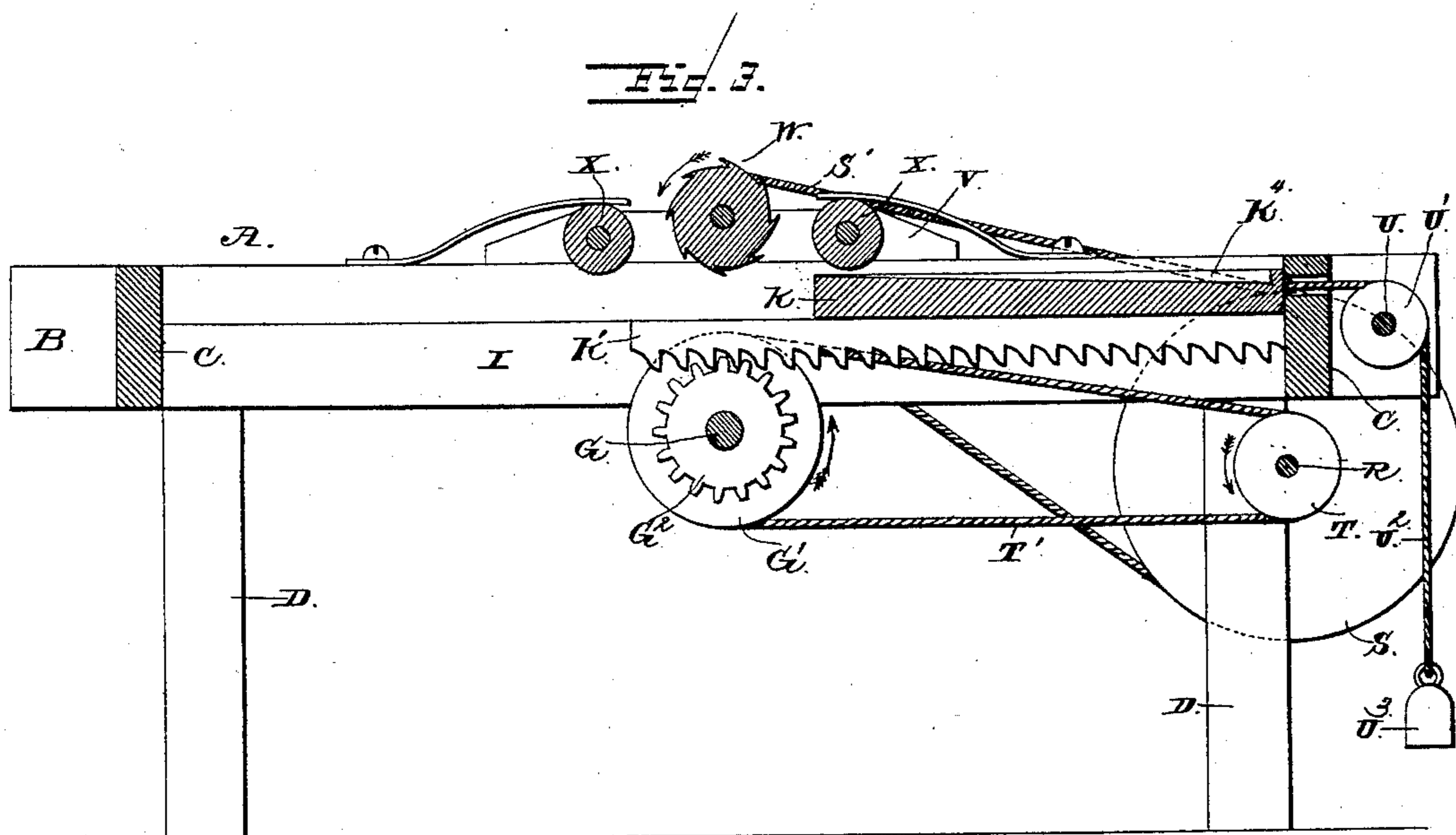
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*J. G. Garner*

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# UNITED STATES PATENT OFFICE.

HENRY LIGHTNER, OF NEFF'S MILLS, PENNSYLVANIA.

## MACHINE FOR DRESSING SHINGLES.

SPECIFICATION forming part of Letters Patent No. 358,045, dated February 22, 1887.

Application filed September 16, 1886. Serial No. 213,691. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY LIGHTNER, a citizen of the United States, residing at Neff's Mills, in the county of Huntingdon and State of Pennsylvania, have invented a new and useful Improvement in Machines for Dressing Shingles, of which the following is a specification.

My invention relates to an improvement in machines for dressing shingles; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a machine embodying my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is a vertical transverse section taken on the line *xx* of Fig. 2. Fig. 5 is a detail perspective view of one of the shingles dressed by the machine.

A represents a vertical rectangular frame, comprising the side beams, B, having the connecting end beams, C, and the depending supporting-legs D. Under the center of the machine a bearing-block, E, is secured to the under side of one of the beams B.

F represents a pivoted bracket, which is secured to the outer side of the opposite beam, B, and the said bracket is provided with a bearing, *f*, and an arm, *f'*.

G represents a transverse shaft, which has one extremity journaled in the block E and the other end journaled in the bearing *f* of the pivoted bracket. Near one end of the shaft G is rigidly attached a grooved pulley, G', and to the center of the said shaft is rigidly attached a pinion, G<sup>2</sup>, provided with spur-teeth.

On the inner sides of the beams B is formed a horizontal guideway, I, and on the said guideway slides a bed or carriage, K, which is provided on its under side with a longitudinal rack-bar, K', provided with teeth which are square on one side and inclined or beveled on the opposite side, as shown. From one side of the bed or carriage depends a vertical tappet-arm, K<sup>3</sup>. On the upper side of the bed or

carriage are made depressions K<sup>4</sup>, the bottoms of which are inclined longitudinally toward the front end of the carriage, and the said depressions are also inclined transversely, as illustrated in Fig. 4. These depressions K<sup>4</sup> are arranged side by side in the carriage, and the latter slides on the guideway I, and its rack-bar is adapted to be engaged by the pinion G<sup>2</sup>.

L represents a lever-arm, which is fulcrumed to the inner side of one of the beams B, the said lever-arm being arranged horizontally and provided at its rear end with an inclined cam, L'. A spring, M, presses against the rear portion of the lever-arm, so as to normally move its cam into the path traversed by the tappet-arm K<sup>3</sup>. To the front end of the said lever-arm is pivoted a detent or pin, N, which extends transversely through the adjacent beam B, and the outer end of the said pin projects normally beyond the outer side of the beam into the path traversed by the vertically-movable arm *f'* of the pivoted bracket F.

O represents a bell-crank lever, which is pivoted to the same beam, B, with the bracket F, and the said bell-crank lever has an arm, O', which engages the arm *f'* of the bracket, and is also provided with a vertical arm, O<sup>2</sup>, forming a hand-lever. A spring, P, bears downwardly on the arm O', and the function of the said spring is to normally depress the said arm and the bracket F, so as to cause the latter to lower one end of the shaft G sufficiently to cause the pinion G<sup>2</sup> to disengage the rack-bar on the under side of the carriage.

At the front end of the frame is journaled a transverse driving-shaft, R, which is provided on one end with a large pulley, S. The said shaft is also provided with a pulley, T, which is connected to the pulley G' on the shaft G by means of an endless belt, T'.

U represents a transverse shaft, which is also journaled in the front end of the frame, above the shaft R. This shaft U is provided with a grooved pulley, U', at its center. A cord or strap, U<sup>2</sup>, is attached to the front end of the carriage, passes through a transverse opening made in one of the beams C, and passes over the pulley U', and to the outer end of the

said cord or strap is attached a weight,  $U^3$ , the gravity of which is sufficient to draw the carriage to the front end of the frame when the pinion is lowered, so as to disengage the rack-bar under the carriage.

On the upper sides of the beams B, at the center of the same, are bolted bearing-blocks V, which are provided near their extremities, on their inner sides, with vertical recesses  $V'$ , and in the centers of the said blocks are journaled the projecting spindles of a rotary planer or dressing-roller, W. On one end of one spindle of the said rotary planer is rigidly secured a pulley,  $W'$ , which is connected to the large pulley S by means of an endless belt,  $S'$ . To the opposite end of the opposite spindle of the planer is attached a driving-pulley,  $W^2$ , to which motion is imparted by an endless belt proceeding from a steam-engine or other suitable motor.

X represents a pair of pressure-rollers, the faces of which are curved, as shown, and the spindles of the said pressure-rollers are journaled in the vertical recesses  $V'$  of the blocks V. Vertically-movable blocks  $X'$  are located in the recesses  $V'$ , and bear upon the upper sides of the spindles of the pressure-rollers, and springs Y, which are attached to the upper sides of the beams B, have their free ends bearing downwardly upon the said blocks  $X'$ , thus serving to force the pressure-rollers downwardly.

Shingles heretofore manufactured are substantially wedge-shaped in longitudinal section, but the upper and lower sides of the shingles are parallel. I propose to manufacture shingles which are wedge-shaped not only in longitudinal section, but also in cross-section at the thick ends of the shingles, so that when the shingles are nailed in position on the roof those portions of the shingles which are exposed to the weather will not be directly in contact with each other across their entire widths, but, owing to their transverse wedge-shaped form, the exposed portions of the shingles will be only in contact with each other for a slight distance and out of contact with each other during the remaining portions of their widths, thus permitting the air to circulate freely between the exposed portions of the shingles, causing the shingles to speedily become dry after a rain, thus preventing the shingles from becoming water-soaked, and thereby rendering them much more durable and greatly enhancing their value in the market. A shingle of this sort is illustrated in Fig. 5.

I am aware that it has been heretofore proposed to provide an ordinary longitudinally wedge-shaped shingle with rabbets upon its side edges, said rabbets, for two-thirds or thereabout the length of the shingle, being less than half the thickness of the shingle, and the parts fitting thereto having more than one-half said thickness, whereby a ventilating space is produced; but such is not my construction, and this I disclaim. Such shingles

are much more expensive and much more difficult to manufacture than mine, and do not admit of a more thorough ventilation than I secure by simply forming the shingles wedge-shaped in cross-section at their thick ends.

The operation of my invention is as follows: The shingle-blanks to be dressed are placed by the operator, standing at the front end of the machine, in the depressions  $K^4$  of the carriage, and the machine is then set in motion, the shafts being rotated in the direction indicated by the arrows in Fig. 3. The operator grasps the hand-lever  $O^2$  and draws the same toward him, thereby causing the arm  $O'$  to raise the bracket F and the shaft G sufficiently to cause the pinion  $G^2$  to engage with the rack-bar under the carriage. As the said pinion rotates it draws the carriage toward the rear end of the machine-frame, thereby bringing the shingle-blanks under the pressure-rollers X and under the rapidly-rotating planer W. The said rollers X keep the shingle-blanks firmly seated in the inclined depressions of the carriage, and the inclination of the said depressions, as previously described, is such as to cause the shingles to be dressed by the planer so as to be wedge-shaped not only in longitudinal section, but also in transverse section at their thick ends, as will be very readily understood. When the hand-lever  $O^2$  is depressed, so as to elevate the free end of the bracket F and of the shaft G, the detent or pin N springs outwardly under the arm  $f'$  of the bracket, so as to lock the said arm in an elevated position and keep the pinion in engagement with the rack-bar. When the carriage has moved past the planing-roll, the depending tappet-arm  $K^2$  of the carriage comes in contact with the inclined cam of the lever-arm L, thereby moving the rear end of the said lever-arm inwardly, and causing the latter to withdraw the pin or detent and release the arm  $f'$  of the pivoted bracket, when the latter immediately drops, and thus lowers the shaft G, so as to cause the pinion  $G^2$  to disengage the rack-bar, and thus permit the carriage to remain stationary while the completed shingles are being removed therefrom. The weight then immediately returns the carriage to its initial position at the front end of the frame, and the operation before described is then repeated.

Having thus described my invention, I claim—

1. As a new article of manufacture, a shingle having one end made wedge-shaped in transverse section, for the purpose set forth, substantially as described.

2. The combination, in a machine for dressing shingles, of the planer, the reciprocally-movable carriage having the rack-teeth, the movable rotating pinion to engage the said rack-teeth and move the carriage in one direction, the detent to secure the pinion in engagement with the rack-teeth, the lever connected to the said detent, the tappet provided

with the carriage to strike the lever and trip the detent and thereby release the pinion from the rack-teeth, and the weight connected to the carriage to return the latter to its initial position, substantially as described.

3. The combination, in a machine for dressing shingles, of the rotating planer, the reciprocally-movable carriage having the rack-teeth, the movable rotating pinion to engage the said rack-teeth and move the carriage, the detent to secure the pinion in engagement with the rack-teeth, the cam-lever connected to the said detent, and the tappet provided with the carriage to strike the said lever and trip the detent to release the pinion from the rack-teeth of the carriage, for the purpose set forth, substantially as described.

4. The combination, in a machine for dress-

ing shingles, of the reciprocating carriage having the rack-teeth and the tappet-arm K<sup>2</sup>, the transverse rotating shaft having the pinion engaging the rack-teeth, the movable bracket F, in which one end of the shaft is journaled, and the spring-actuated cam-lever and the detent connected thereto, adapted to engage the free end of the bracket F when the latter is raised and lock it in that position, for the purpose set forth, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

HENRY LIGHTNER.

Witnesses:

D. ROSS GREGORY,  
GEO. W. LUPFER.