

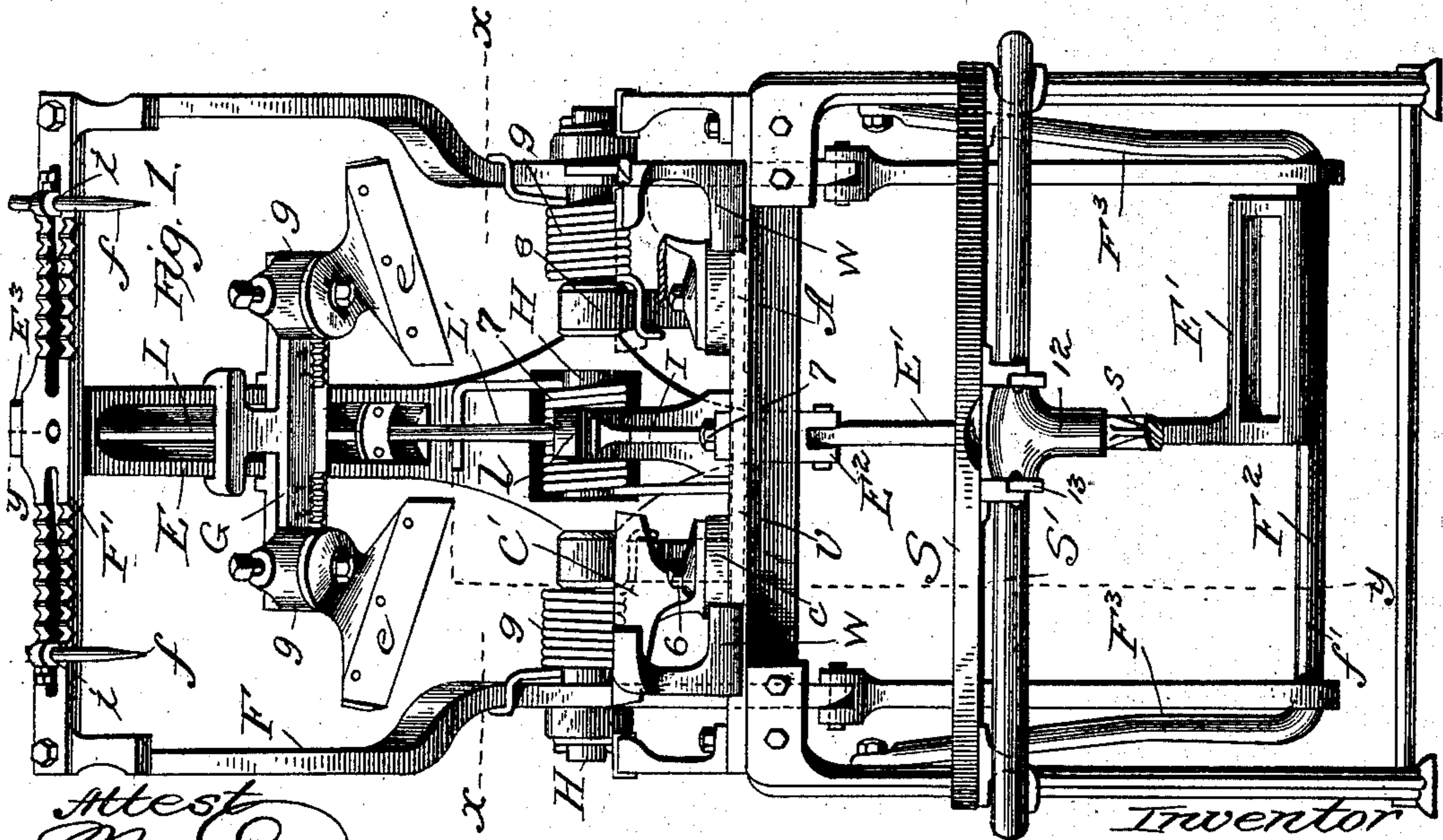
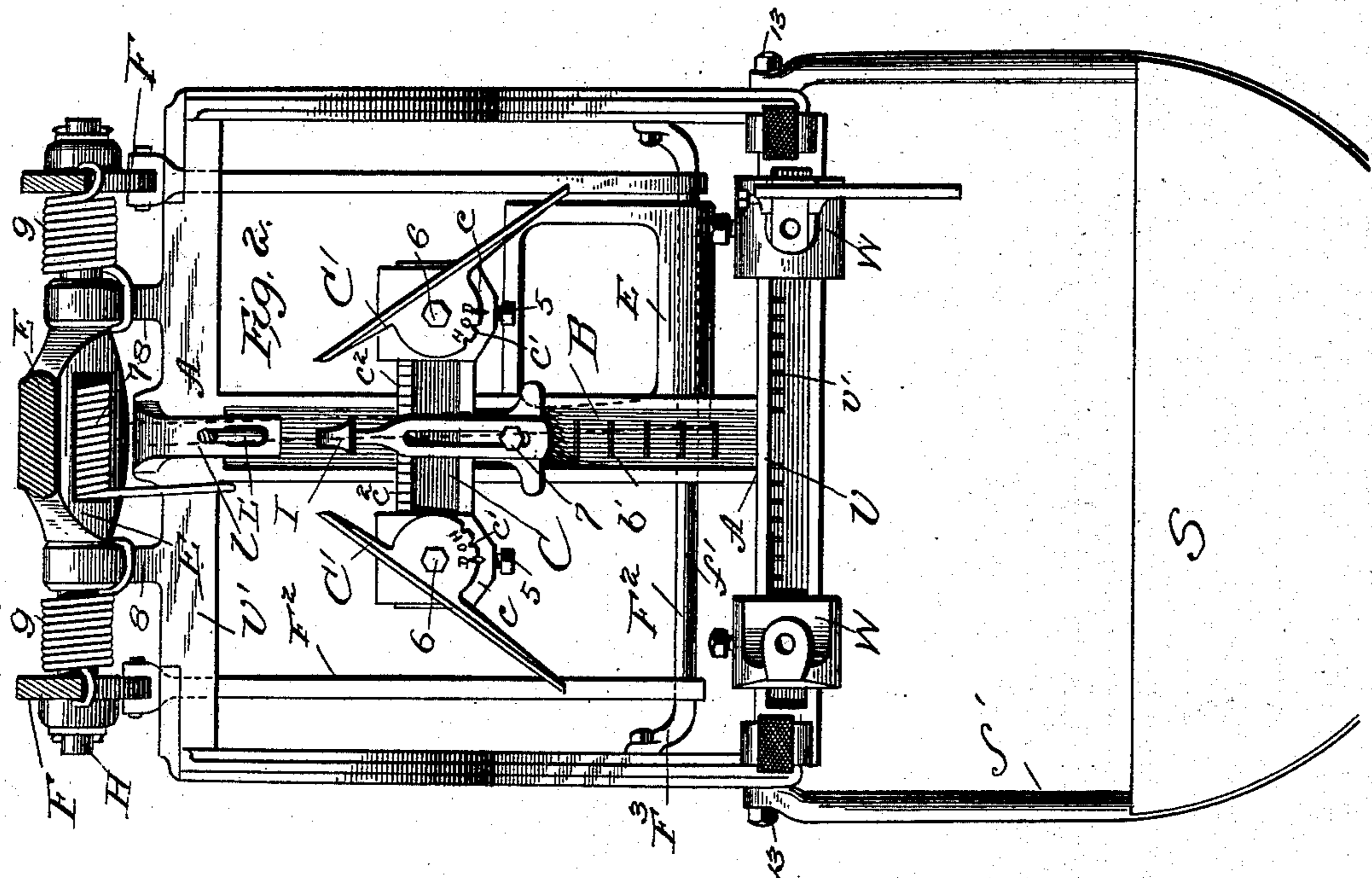
(No Model.)

2 Sheets—Sheet 1.

F. R. MARKS.  
SLATE DRESSING MACHINE.

No. 413,348.

Patented Oct. 22, 1889.



Attest  
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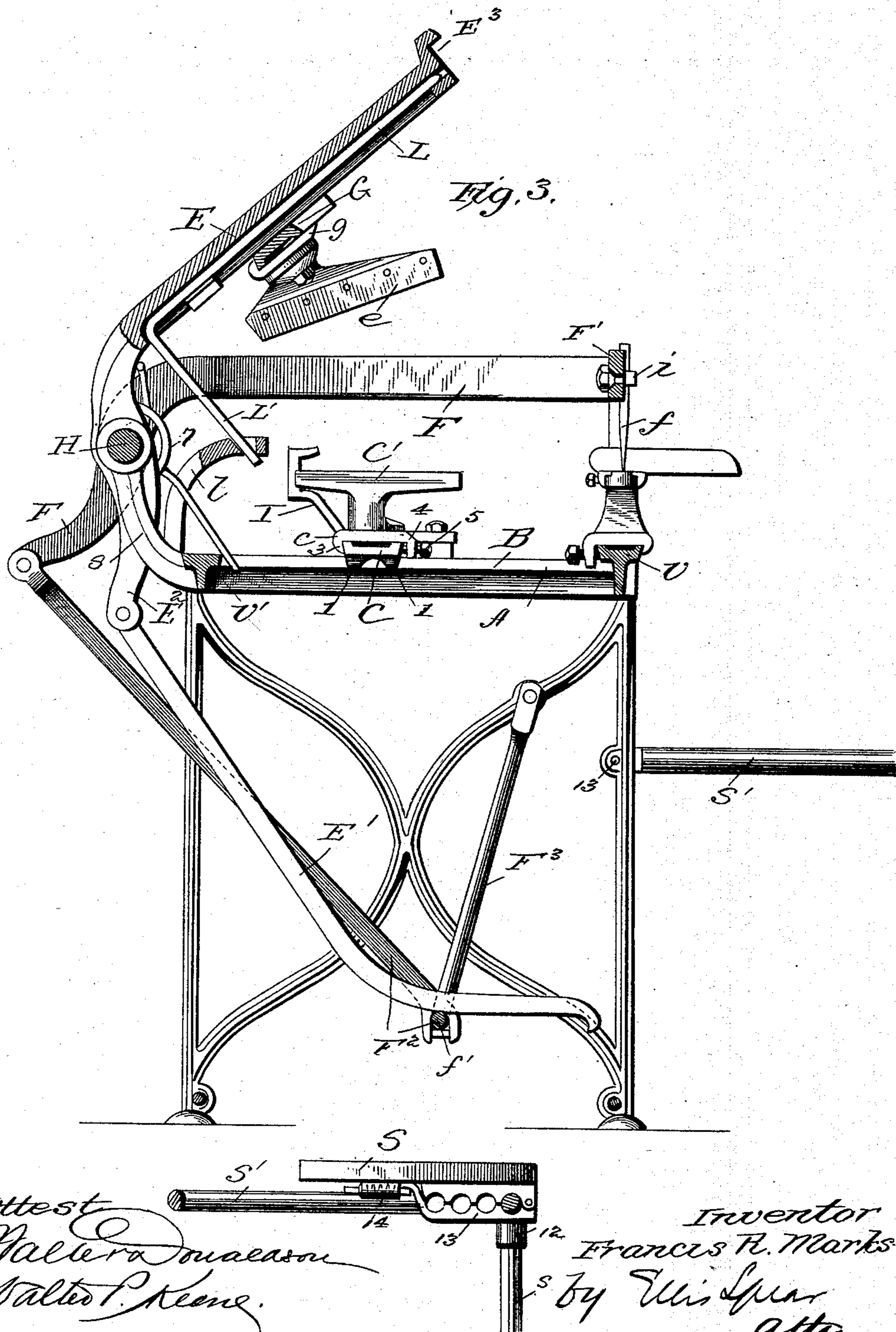
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# UNITED STATES PATENT OFFICE.

FRANCIS R. MARKS, OF ASHLAND, OHIO.

## SLATE-DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 413,348, dated October 22, 1889.

Application filed August 9, 1889. Serial No. 320,253. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS R. MARKS, of Ashland, in the county of Ashland and State of Ohio, have invented a new and useful Improvement in Slate-Dressing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

The main feature of distinction in this invention consists in arranging the cutting and punching devices on two independent supports, the punching mechanism being capable of action independent of the cutting mechanism, as well as in unison therewith and dependent thereupon.

The invention consists, further, in the peculiar arrangement of treadles by which, while the punching mechanism may be operated separately from the cutting mechanism, it may also be operated in unison therewith by the depression of the treadle of the cutting mechanism.

It consists, also, of an automatic locking device which securely holds the two supports of the cutting and punching mechanisms together as they move to accomplish the work, and which releases them from each other as they reach their upward or normal position, thus allowing the punching mechanism to be operated separately, if such an action is desired.

Other features of novelty tending toward rendering the machine more practical and perfect are pointed out in the claims.

In the drawings, Figure 1 is a front view of the entire machine with the cutting and punching devices in raised or normal position. Fig. 2 is a plan view of the lower frame below line  $x x$ , Fig. 1. Fig. 3 is a vertical section on line  $y y$  of Fig. 1.

In the drawings, A is the frame upon which the work to be operated upon is supported; and E and F are the vibrating frames, pivoted to the main frame, which carry the cutters  $e$  and punches  $f$ , respectively. The main frame A is provided with transverse top rails  $V V'$  at front and rear connected by a central bar B. This bar is T-shaped in cross-section and supports an adjustable plate C, extending transversely of the machine and held by the lips 1 and a screw fitting against the beveled edges of the bar B. This plate carries the rests  $C'$  for the slate, which are secured

thereto adjustably by means of the movable blocks  $c c$ , having lips 3 4 and screw 5, fitted to the beveled edges of the plate in a manner similar to that above described regarding the plate C. The slate-rests  $C'$  have circular bases by which they are connected to the blocks by means of the screw-bolts 6. The plate C also carries the gage I, which is adjustable thereon, it being held so by a screw 7, passing through its slotted base portion. On the front top rail, which is also beveled on its edges, are the punch-rests W, adjustably held by lips and screws, as before described.

The slate to be dressed is placed upon the punch-rests W and the rests  $C'$ , with its rear edge against the gage I, and all these parts may be adjusted to suit different sizes of slate—that is, the punch-rests and the rests  $C'$  may be moved transversely to get greater or less width, the plate C may be moved forward or backward, and the rests  $C'$  may be set at any angle, and in order to render these adjustments more certain and easier the bar B, plate C, and front top rail V are graduated, as at  $b'$ ,  $c'$ , and  $v'$ , and the circular bases of the rests  $C'$  are also graduated at  $c'$  to give a diamond, hexagon, or octagon shape to the material, and the edge is preferably marked H O D for this purpose, as shown. The cutting-knives  $e$  are carried by blocks  $g$ , adjustable on a plate G, which is in turn adjustable upon the arm or frame E, all in a manner similar to that already described. The arm is pivoted on a cross-bar H, supported by brackets 8 at the rear of the machine, and is held normally upward by a spring 7, and is thrown down to cause the knives to act by a treadle  $E'$ , pivotally connected to an extension  $E^2$  of the arm. This arm is arranged centrally, and upon each side, near the end of the cross-bar H, are pivoted arms F, which extend to the front and are connected by transverse bar  $F'$ . This is in position to be in front of the end of the cutter-bar E when the parts are together and beneath a projecting lip  $E^3$  on said bar. The bar  $F'$  is slotted longitudinally to receive the blocks  $i$ , carrying the punches  $f$ , and the face of the bar has a series of vertical serrations by which the accurate adjustment of the punches may be effected. This punch-carrying frame is under tension of springs 9, and

is in connection with a treadle-frame  $F^2$ , which is pivotally suspended from the main frame by links  $F^3$ . This treadle-frame has a cross-bar  $f'$ , and upon this rests the treadle  $E'$  of the cutting mechanism. From this arrangement it will be seen that the two frames when relieved of pressure will return to normal position and will assume the same relation in regard to each other, the lip or projecting part of the arm  $E$  acting as a limiting-stop and to retain the parts in position and compensate for any inequalities in the springs, and when pressure is applied to the cutter-treadle  $E'$  the movement will be communicated to the punch-frame through its treadle  $F^2$ , upon which the treadle  $E'$  rests, and through the arm  $F$  engaging with the punch-frame. Further, it will be seen that the punch-frame can be operated entirely independent of the cutters by pressing the bar  $f'$  of the treadle-frame, the bar  $E$  then remaining up under action of its spring.

In the downward movement of the knife-arm the lip thereon engaging with the punch-frame forces it accurately to work and in unison with the movement of the other parts.

In order to render the action of the frames more certain when both are operated, an automatic lock is provided which connects them as they move downward, but which retracts and disconnects them when normal position is reached. This consists of a sliding bolt  $L$ , arranged in a channel of the bar  $E$ , to project therefrom when thrust forward and engage with the cross-bar  $F'$  of the punch-frame. The bolt has a downward right-angular extension at its rear end, which enters an opening in the horizontal part of the standard  $L$ . As the bar  $E$  is forced downward, the right-angular extension  $L'$  of the bolt being acted upon by the wall of the opening in the standard causes the bolt to be thrust forward and thus connect the bar  $E$  and frame  $F$ , which then move as one, insuring stability of the parts and certain action of the tools in proper order and time. When the parts rise, the bolt retracts, leaving the frames disconnected for separate action of the punches, if desired.

With this machine I have combined an adjustable form of seat which is pivotally connected to the machine-frame. The seat is shown at  $S$ , and is supported by the standard  $s$  and the curved frame  $S'$ . The standard is connected at its upper end with the frame  $S'$  by means of the socket 12, and the frame  $S'$  is pivotally connected to the machine-frame  $A$  at points 13. The seat has upon its under side a clasp 13, made in two parts hinged together, one part being secured rigidly to the seat and both being provided with registering semicircular sockets which embrace the curved frame. The movable part is held in position by means of a spring-latch 14. In adjusting the seat the latch is withdrawn, the hinged part of the clasp is

swung away from the other part, and the seat may then be adjusted toward or from the machine and secured by the clasp.

I claim as my invention—

1. In combination, the supporting-frame, the punches and the knives, the supports therefor, each of said supports having a separate set of operating-connections, the punch-support and its operating means being independently movable and arranged also to be engaged and moved by the knife mechanism, substantially as described.

2. In combination, the frame, the punches and knives with their movable supports, the treadle-frames for operating the support of the punches, comprising the suspending-links  $F^3$ , cross-bar  $f'$ , and frame  $F^2$ , and the treadle  $E'$ , for operating the support of the knives, said treadle resting loosely on the cross-bar  $f'$ , whereby a simultaneous action of the knives and punches may be secured, or an independent action of the punches, substantially as described.

3. In combination, the supporting-frame, the punches and knives, the separate supports therefor, a treadle mechanism connected with the knives, support for operating it, a portion of said support engaging the punch-support, said punch-support also having a separate treadle mechanism, whereby it may be operated entirely independent of the knives, substantially as described.

4. In combination, the supporting-frame, the punches, the supporting-frame therefor pivotally secured to the frame, and having a cross-bar  $F'$  at its forward end for holding the punches, the knife-arm also pivotally supported and arranged to engage at its forward end with the cross-bar  $F'$ , means for moving the knife-supporting arm, and separate means for operating the punches independently, substantially as described.

5. In combination, the knives and the supporting-arm therefor, the punches and their support, means for operating the knife-support, and an automatic locking-bolt for connecting the two supports as they move to work and release them as they assume normal position, and separate operating means for moving the punches independently of the knives, substantially as described.

6. In combination, the knives, the punches, the movable supports therefor, the means for operating each of the supports, the automatic lock consisting of the sliding bolt having an angular extension at its rear, and the perforated standard for moving said bolt, substantially as described.

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

FRANCIS R. MARKS.

Witnesses:

R. M. CAMPBELL,  
G. W. EMERICH.