

(Model.)

2 Sheets—Sheet 1.

G. E. COOKE.
RIVING MACHINE.

No. 335,795.

Patented Feb. 9, 1886.

Fig. 1.

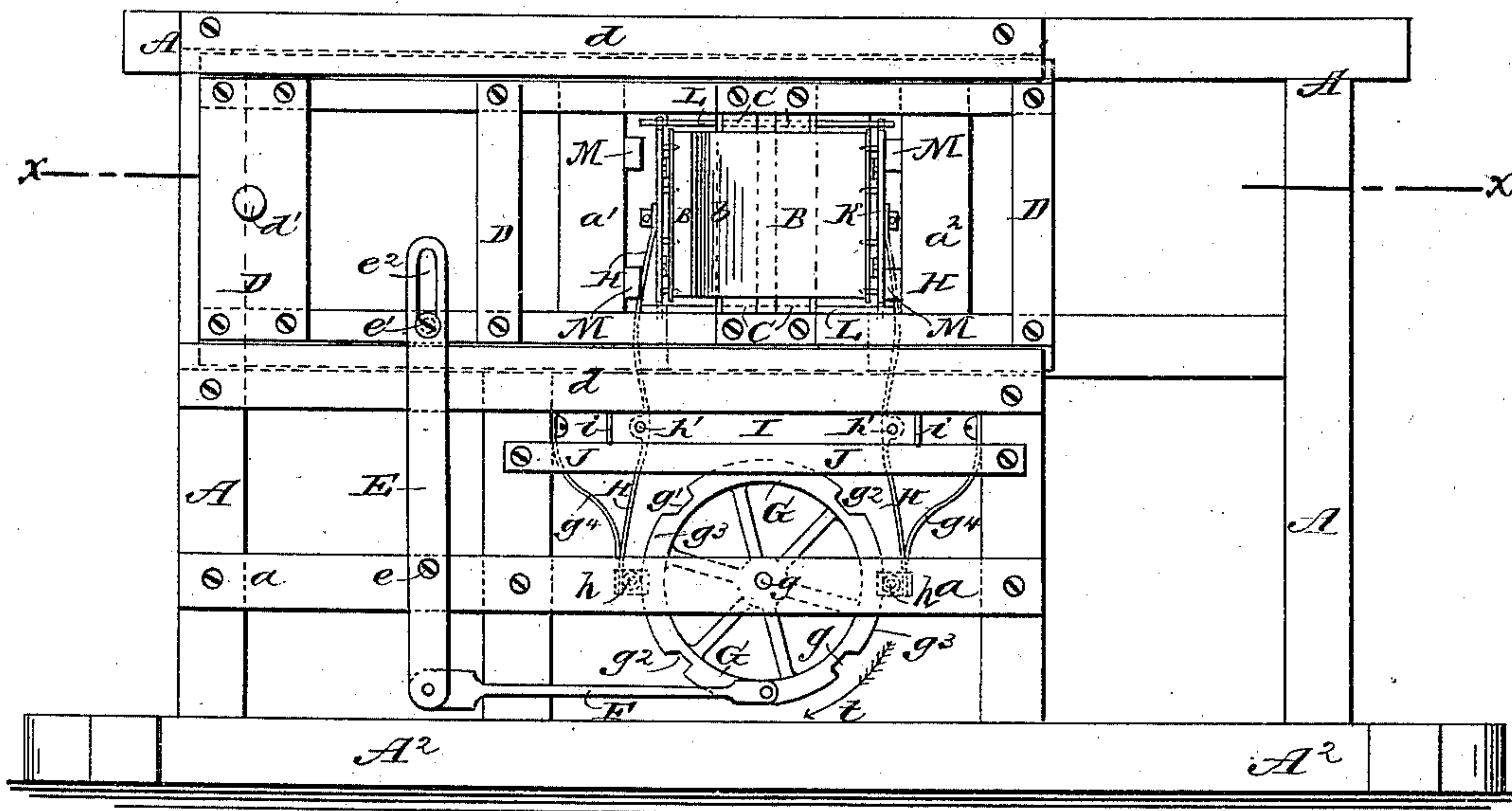
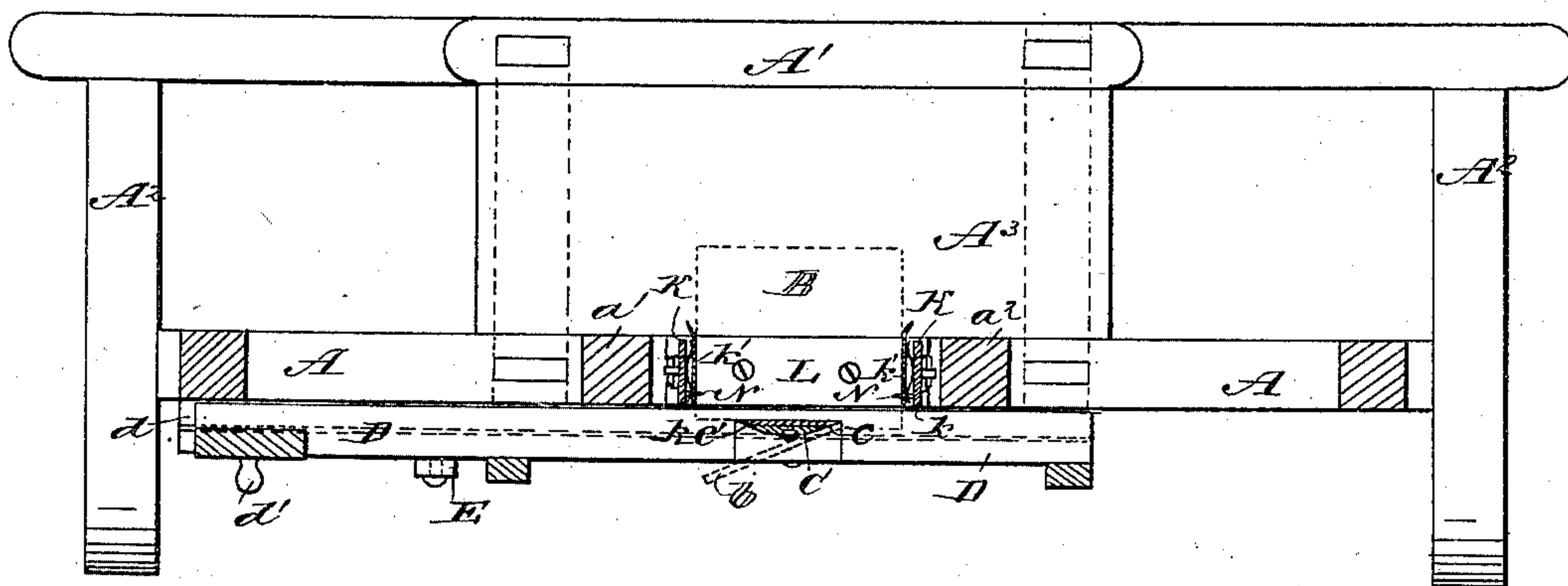


Fig. 2.



WITNESSES:

WITNESSES:
H. Beyer
C. Sedgwick

INVENTOR:

G. E. Cooke

BY. *Munn & Co*

ATTORNEYS.

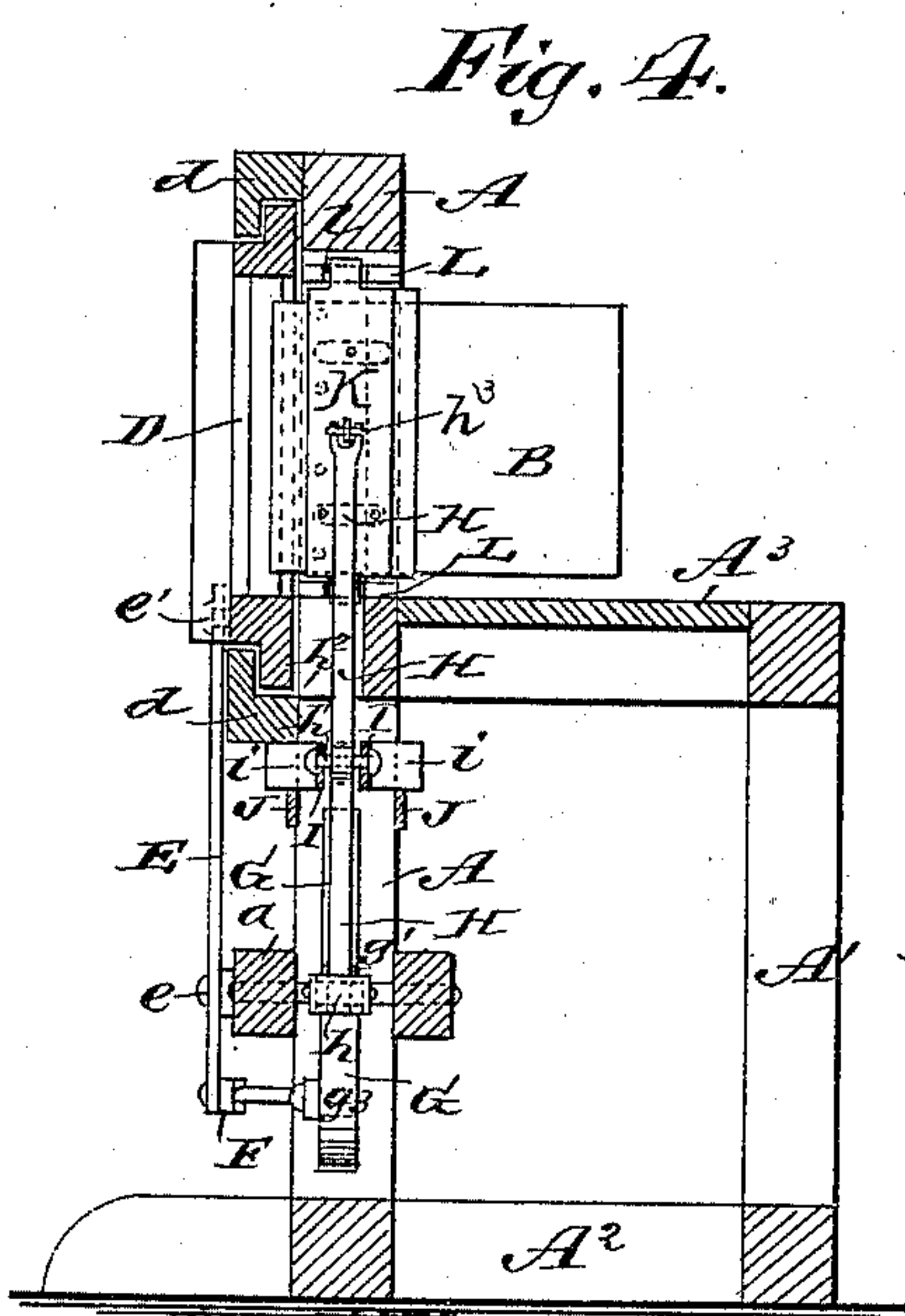
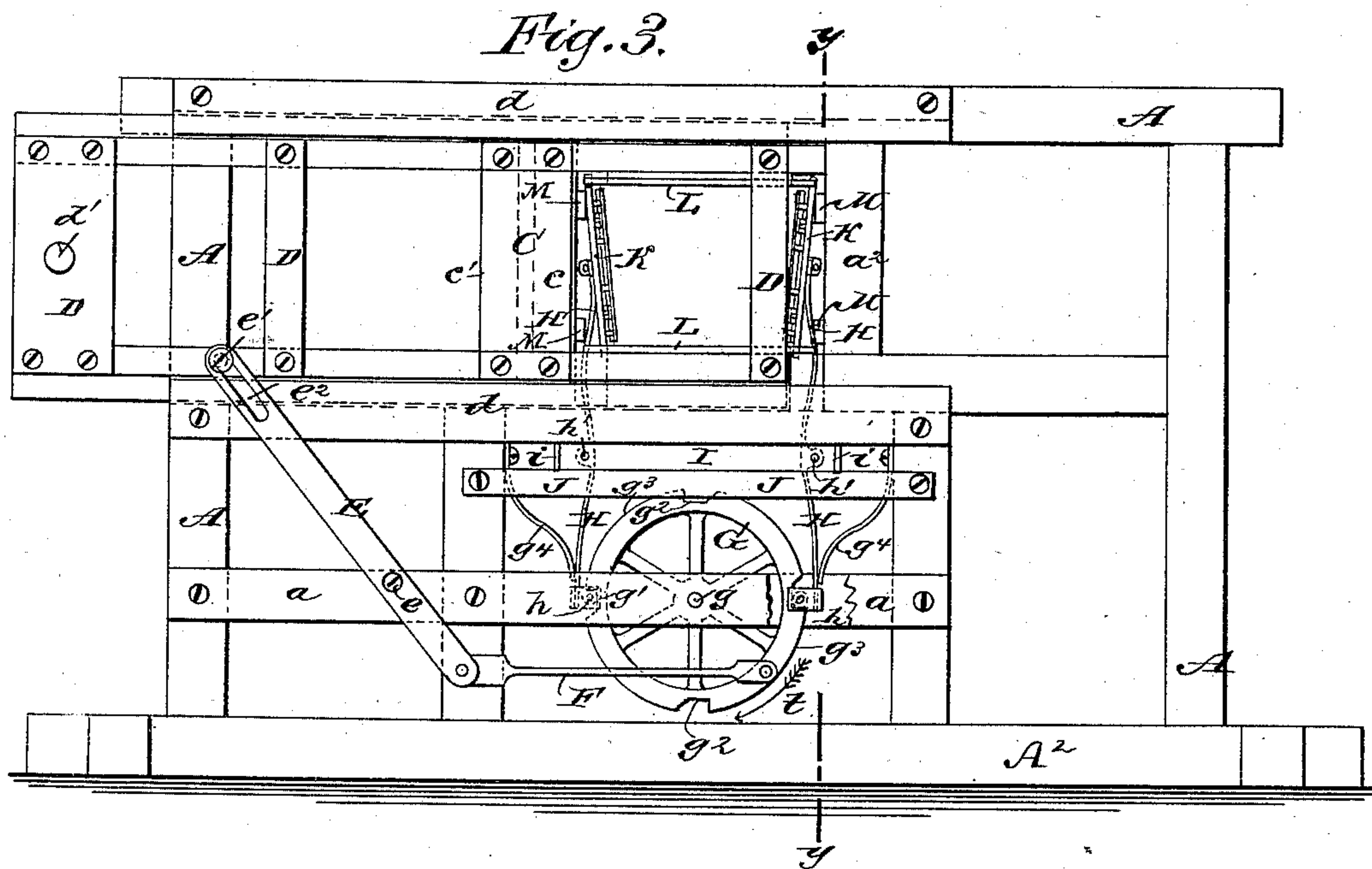
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WITNESSES:

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C. Sedgwick

Fig. 2.

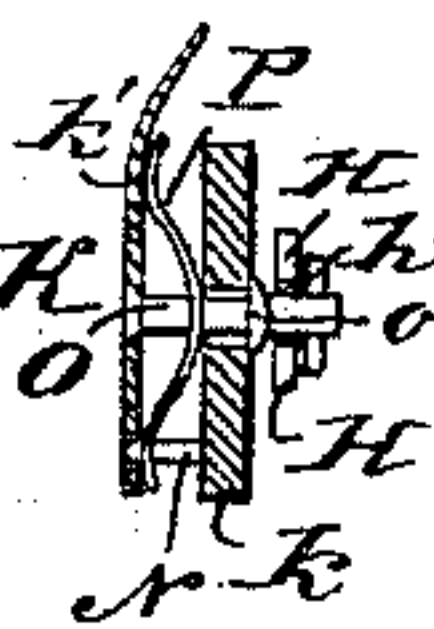


Fig. 5.

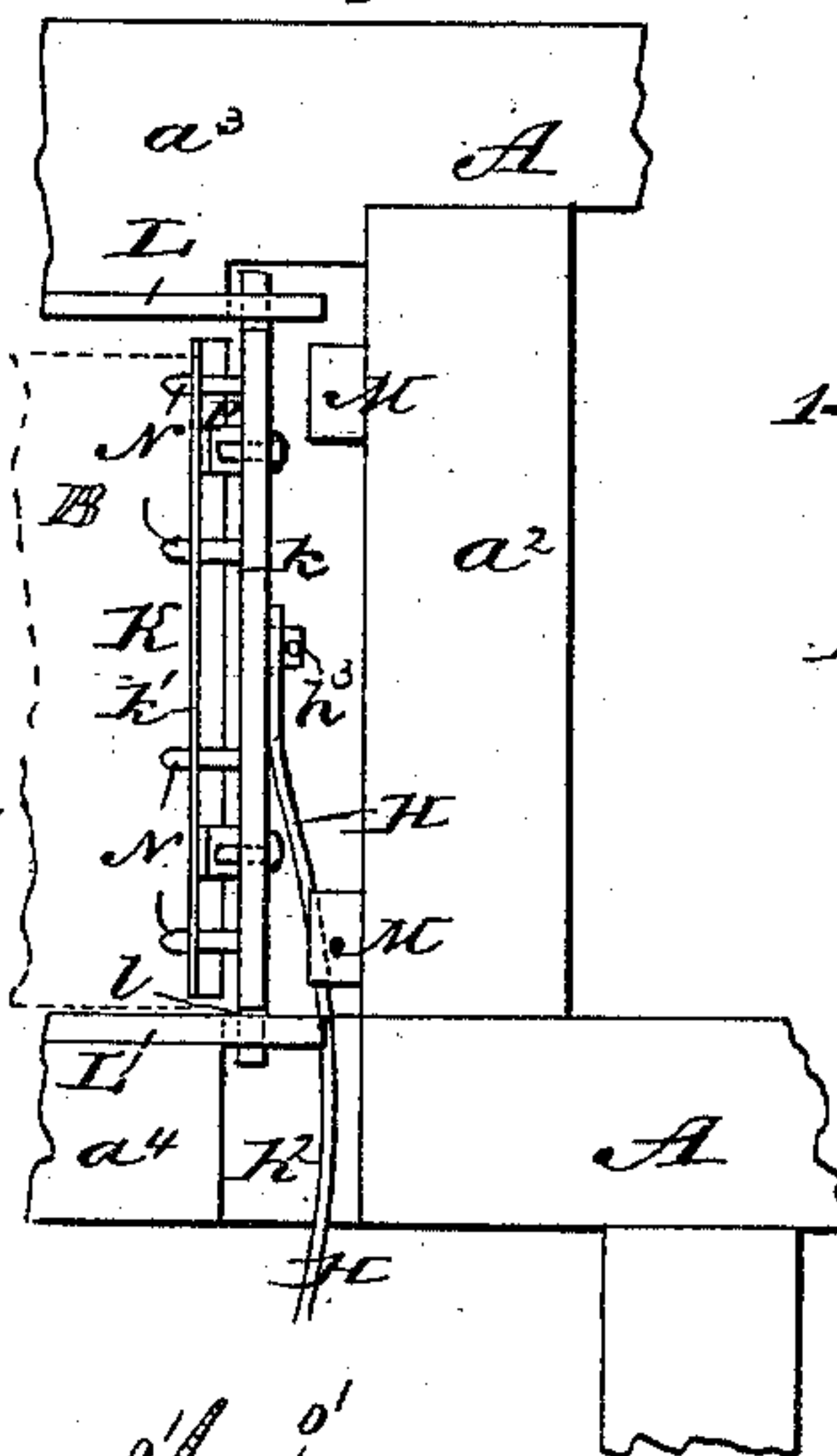


Fig. 6.

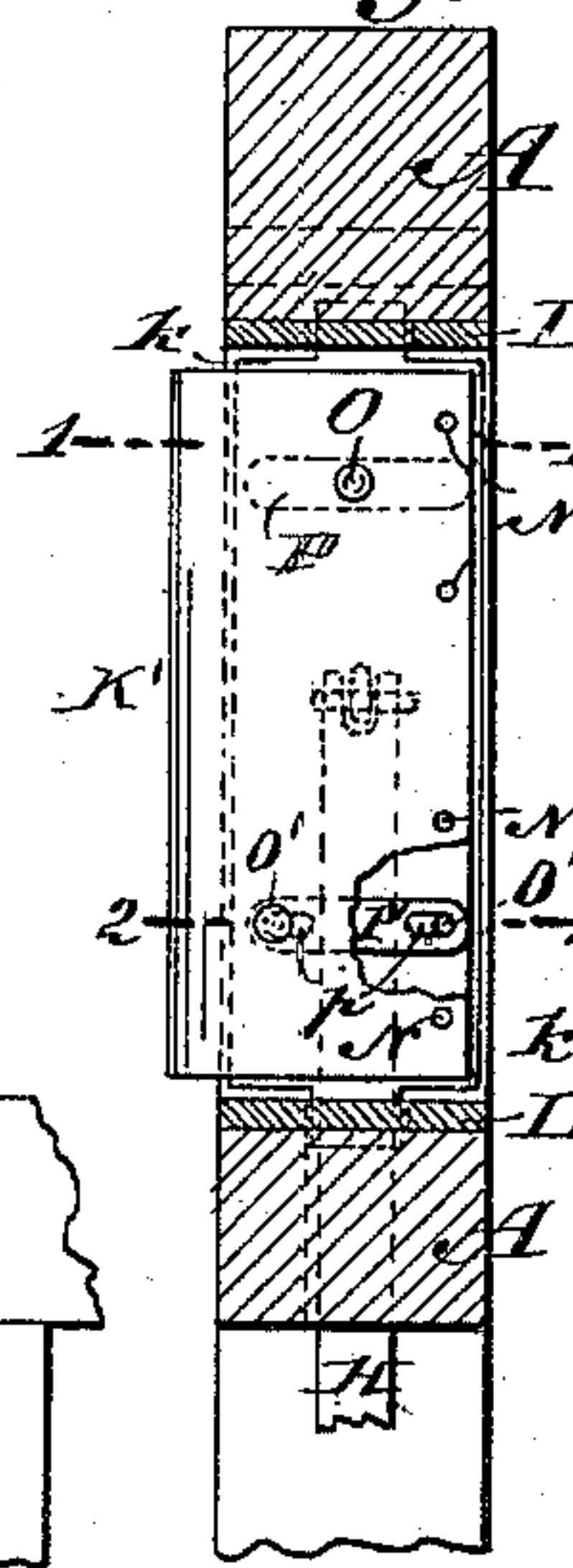


Fig. 8.

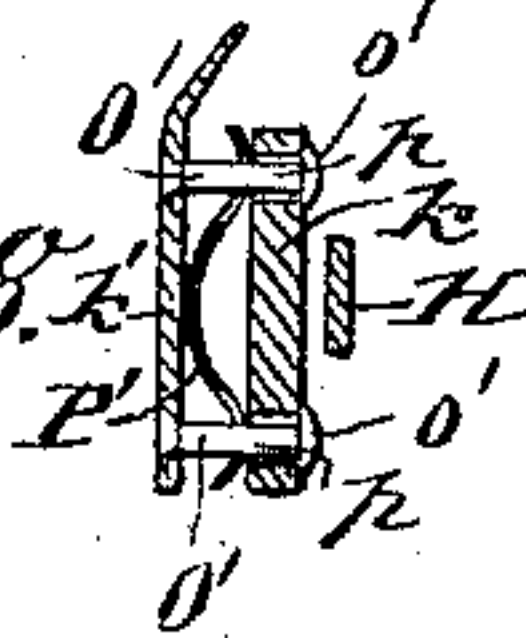
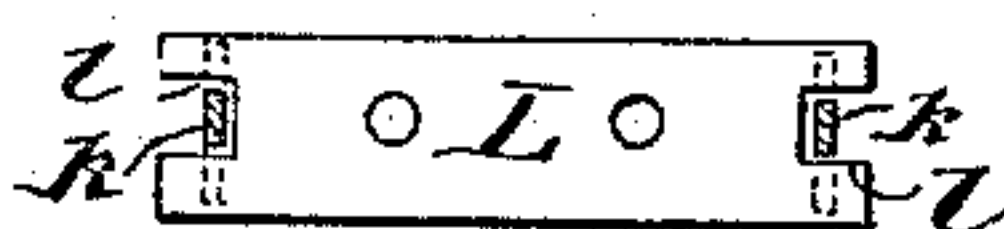


Fig. 9.



INVENTOR:

G. E. Cooke

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE E. COOKE, OF CLARKSVILLE, TENNESSEE.

RIVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,795, dated February 9, 1886.

Application filed July 11, 1885. Serial No. 171,401. (Model.)

To all whom it may concern:

Be it known that I, GEORGE EDWARD COOKE, of Clarksville, in the county of Montgomery and State of Tennessee, have invented a new and Improved Riving-Machine, of which the following is a full, clear, and exact description.

My invention relates to machines adapted more particularly for riving bolts or blocks of timber in the manufacture of shingles, and has for its object to economize time and labor in performing this work.

The invention consists in certain novel features in the construction and combination of parts of the riving-machine, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a rear elevation of my improved riving-machine, with the clamps holding the block and the sash-knife operating to rive or cut a shingle from the block. Fig. 2 is a plan view in section on the line $x x$, Fig. 1. Fig. 3 is a rear elevation of the machine, with the clamps inoperative to allow the block to be fed forward prior to making a cut through it. Fig. 4 is a transverse vertical sectional elevation taken on the line $y y$, Fig. 3, and showing the block in place. Fig. 5 is a detail rear elevation showing one of the block-clamping heads in edge view and in larger size. Fig. 6 is a view at right angles to Fig. 5, with the frame partly in section, and showing the face of the clamping-head; and Figs. 7, 8, and 9 are detail views of parts of the clamp-heads.

The frame of the machine consists of the main rear part, A, on which the operating mechanism is supported, and a lower front part, A', all connected suitably with a bed or sill frame, A².

In the space between the head of frame part A' and the part A is fitted the table A³, on which the blocks or bolts B of timber to be rived or cut may be supported while being fed forward to the riving-knife C, which is double-edged to cut the block, as the sash D to which the knife is fastened is slid in opposite directions in the ways or guides $d d$, fixed to part A of the frame by means of any suitable mechanism connected to a wrist-pin, d' , on the sash.

To a bar, a , of the frame is pivoted at e the lever E, which is pivoted to the sash D by a pin, e' , which passes through a slot, e^2 , in the lever and causes the lever to be oscillated by the reciprocation of the sash.

To the lower end of lever E is pivoted one end of a rod, F, the other end of which connects pivotally with a wheel, G, which is journaled in the frame at g , and has diametrically-opposite pairs of notches, $g' g' g^2 g^2$, in its periphery g^3 , so that as the wheel G is turned one-quarter round and back by the lever E and rod F the rollers $h h$, (dotted,) journaled at the lower ends of the opposite and flexible arms H H, will alternately be forced by springs g^4 into the opposite pairs of notches, one end of each notch being beveled to allow the rollers to rise easily from the notches to the periphery of wheel G as the wheel turns in opposite directions. The arms H H are pivoted at $h' h'$ between the plates I I, which have outturned ends $i i$, by which the plates and arms are supported on cross bars J J, which are fastened to part A of the machine-frame. The plates I I are held against rising from the bars J J by contact of the end parts, i , of the rear plate, I, with the lower sash-guide, d . (See Figs. 3 and 4.) It is evident that the plates I I and the pivot-joints $h' h'$ of the arms H H are free to move lengthwise of the machine on the bars J J, thus allowing the arms H H to move bodily at their upper parts as the clamp-heads K K, which are attached to the arms, are moved by the knife C to a solid bearing against blocks on the opposite uprights, $a' a^2$, of the frame, between which uprights the clamp-heads hold the blocks or bolts B to be rived, as presently explained. The arms H H each pass upward above their pivots through notches h^2 in the machine-frame, so that the upper ends of the arms may be connected with the back plates, k , of the clamp-heads K by means of notches in the arms H, straddling lugs on the plates k , and pins h^3 passed through the lugs outside of the notched ends of the arms, as seen most clearly in Figs. 5, 6, and 7; but any other suitable connection of the arms and clamp-heads may be made. The main or back plates, k , of the clamp-heads have their opposite or upper and lower ends reduced to form tenons which enter slots $l l$ in upper and lower metal plates,

L L, fixed to the timbers $a^3 a^4$ of the frame, these slots $l l$ serving as guides to the clamp-heads as they are moved to and from the backing-blocks M, fixed to the faces of the opposite frame-timbers, $a' a^2$, by the riving-knife. One of the plates L and the end tenons of the clamp-head plates K are shown in Fig. 9. The opposite clamp-heads, K K, are constructed alike, and as shown more clearly in the enlarged detail views, Figs. 5, 6, 7, and 8, and next described. The main plate k of each clamp-head is provided in its face, and as near as may be to its back edge and to the line of action of the riving-knife C, with a vertically-ranging series of fixed pins, N, which are adapted to project through apertures formed in the face-plate k' of the clamp-head.

Figs. 7 and 8 are sectional plan views of the clamp-head taken on the lines 1 1 and 2 2 in Fig. 6, and show more clearly how the front edges of the face-plates k' are turned outward to facilitate placing the bolts B between the opposite clamp-heads, and also show different arrangements of the guide-pins and springs by which the plates $k k'$ are attached to and forced from each other.

Fig. 7 shows that at or near the top of the plates $k k'$ a pin, O, is riveted or otherwise fixed to the face-plate k' , and passes freely through a hole in the main plate k , and on pin O, and between plates $k k'$, is placed a bowed plate-spring, P, which acts normally to separate the two plates, the head o of pin O limiting the movement of the plate k' when the outer face of plate k' lies just beyond the points of the clamping-pins N, set into the plate k ; and Fig. 8 shows two pins, $O' O'$, fixed to plate k' , and passing freely through plate k , and a spring, P' , placed on the pins $O' O'$, between plates $k k'$, this spring being slotted at p to allow the plate k' to be pressed toward plate k , the heads $o' o'$ of pins $O' O'$ limiting the outward throw of the plate k' by the spring P' , substantially as above described for the upper pin, O, and spring P. The two lower pins, O' , are used to afford room for the passage between them of the spring-arm H to connect with the plate k about at its vertical center.

It is evident that when the clamp-heads are forced to the bolt or block B the face-plates k' of the heads will be forced back against the tension of springs $P P'$, as the pins N are forced into the opposite sides of the bolt to hold it to the riving-knife, and when the clamp-heads are carried back or away from the bolt by the action of the springs g^4 , when the rollers $h h$ enter the notches of the wheel G, the springs $P P'$ act to withdraw the pins N from the bolt by pressing the face-plates k' outward.

The operation of the machine is as follows: At the extreme limit of both the forward and back strokes of the sash D the rollers $h h$ of the clamp-arms H H will rest in an opposite pair of notches in the wheel G and the clamp-heads K K will be loose from the bolt B, as

shown in Fig. 3, to allow the bolt to be pushed or fed forward by hand, or by any approved automatically-acting feeding devices, to any suitable gage which governs the thickness of the rived shingles or pieces to be cut from the bolt. We will suppose the sash D to be fully drawn back, as in Fig. 3. The rollers $h h$ of clamp-arms H H then are pressed into the opposite notches, $g' g'$, of the wheel G by the springs g^4 , to swing the arms H on their pivots h' and draw back the opposite clamp-heads, K K, from the bolt, or to allow a bolt, B, to be placed between them and in front of the cutting-edge c of the riving-knife C. As the sash D is moved forward the rod F will be drawn backward to turn the wheel G in the direction of the arrow t , which will cause the rollers $h h$ to be lifted from the notches g' onto the periphery g^3 of the wheel G, to swing the arms H H on their pivots and close the clamp-heads on the bolt B and hold the bolt firmly as the edge c of the knife cuts a shingle or piece, b , from the bolt, and as the cut is completed the rollers will enter the other pair of wheel-notches, $g^2 g^2$, and the springs g^4 will draw back the clamp-heads and allow the springs $P P'$ to withdraw the pins N from the bolt, which then is fed forward, and on the return or backward stroke the clamps will be closed on the bolt as the rollers $h h$ are lifted from the notches $g^2 g^2$ as the wheel G turns the other way, and the next shingle or piece will be cut from the bolt by the edge c' of the riving-knife. It is to be remembered that as the riving-knife cuts the bolt the opposite plates, k , of the clamp-heads K will be carried to a bearing against the backing-blocks M on the machine-frame, this being allowed by the attachment of the clamp-arms H H to the sliding frame I, as hereinbefore explained, so that the bolt B is held solidly to the frame, which insures a clean smooth cut of the riving-knife through the bolt and entirely prevents overstraining of or injury to the clamp heads, their arms, and the clamp-operating mechanism, and enables the machine to perform good work continually with economy of the time and labor of attendants.

It is not essential to the successful working of the machine to have the rollers h mounted at the lower ends of the clamp-arms H, as intumed ends of the arms may act directly on the periphery of wheel G, so as to enter its notches; but the use of rollers h is preferable, as they relieve the friction and lessen the wear of the parts, as will readily be understood.

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

1. A riving-machine comprising a frame, a riving-knife, bolt-holding clamp-heads connected to the one ends of arms pivoted in the frame, a notched wheel adapted to be oscillated in the frame, and on which wheel the other ends of the pivoted arms act so as to fall into and be lifted from the notches as the clamps

open and close, and springs pressing the arms to the notched periphery of said wheel, substantially as herein set forth.

2. A riving-machine comprising a frame, a
5 riving-knife, bolt-holding clamp-heads connected to the one ends of arms pivoted to a bar or frame adapted to slide in the main frame to allow bodily movement of the clamp-heads by the action of the riving-knife on the bolt, a
10 notched wheel adapted to be oscillated in the frame, and on which wheel the other ends of the pivoted arms act so as to fall into and be lifted from the notches as the clamps open and close, and springs pressing the arms to the
15 notched periphery of said wheel, substantially as herein set forth.

3. The combination, in a riving-machine, of a supporting-frame, a reciprocating sash, D, riving-knife C, lever E, rod F, notched wheel
20 G, opposite arms H H, bearing on wheel G, springs g^4 , and clamp-heads attached to arms H H and adapted to hold the bolt to be rived, substantially as herein set forth.

4. The combination, in a riving-machine, of
25 a supporting-frame, a reciprocating sash, D, riving-knife C, lever E, rod F, notched wheel G, opposite arms H H, bearing on wheel G, and pivoted to a bar or frame, I, adapted to slide

in the main frame, springs g^4 , and clamp-heads attached to the arms H H and adapted to hold
30 the bolt to be rived, substantially as herein set forth.

5. In a riving-machine, the combination, with a reciprocating sash carrying a riving-knife, and mechanism, substantially as described, for
35 operating said sash, of the clamp-heads K, made with a main plate, k , guided in the frame and provided with pins N, a face plate, k' , held to plate k , so as to be movable to and from said
40 plate, and springs interposed between the plates k k' , substantially as herein set forth.

6. In a riving-machine, the combination of a supporting-frame, a reciprocating sash, D, riving-knife C, lever E, rod F, notched wheel
45 G, opposite arms H H, bearing on the wheel G, and pivoted to a bar or frame, I, adapted to slide in the main frame, springs g^4 , and clamp-heads attached to arms H H and consisting of main plates k , having pins N, face-plates k' ,
50 and springs interposed between the plates, substantially as herein set forth.

GEORGE E. COOKE.

Witnesses:

M. W. QUARLES,
GEO. W. HENDRICK.