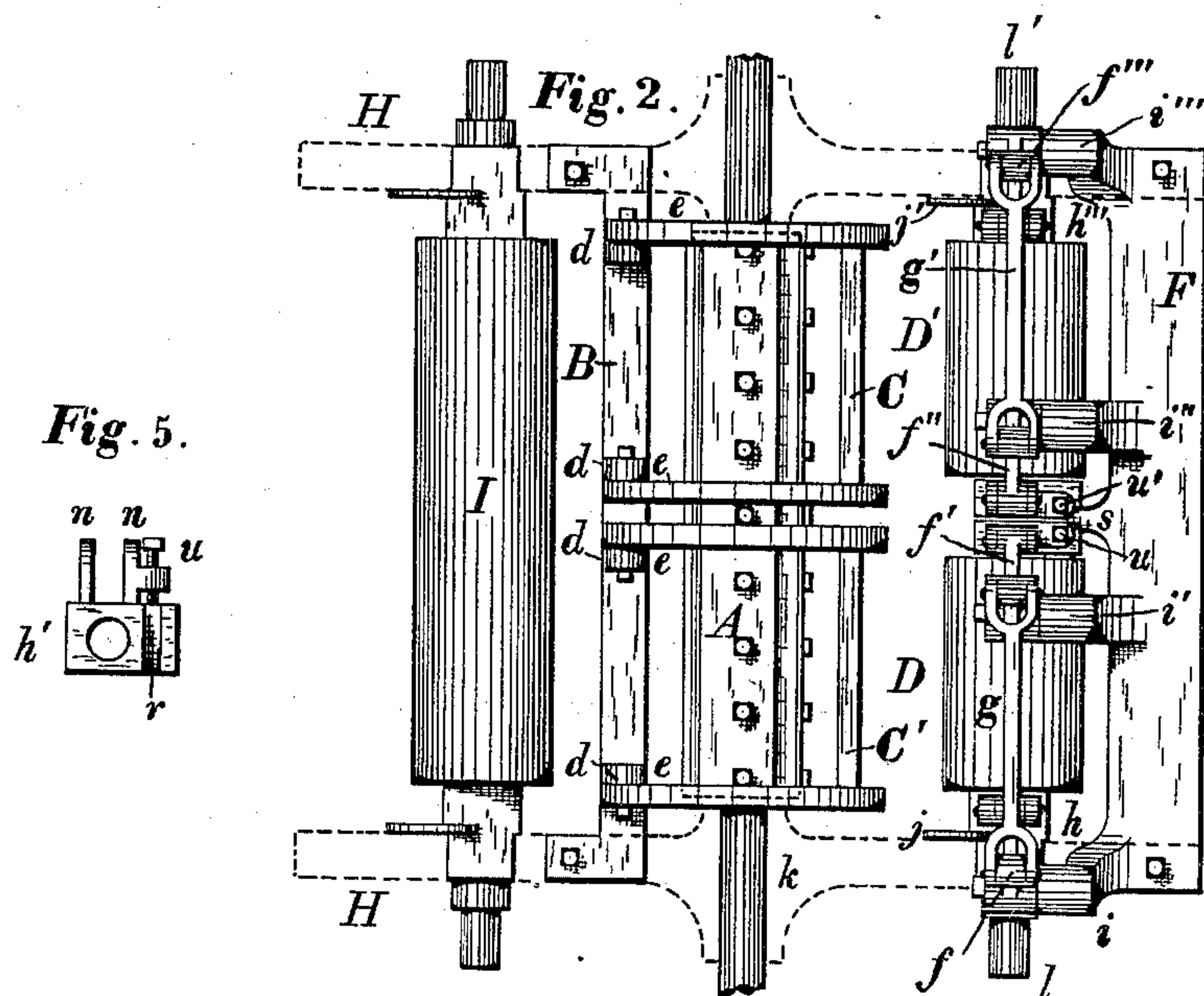
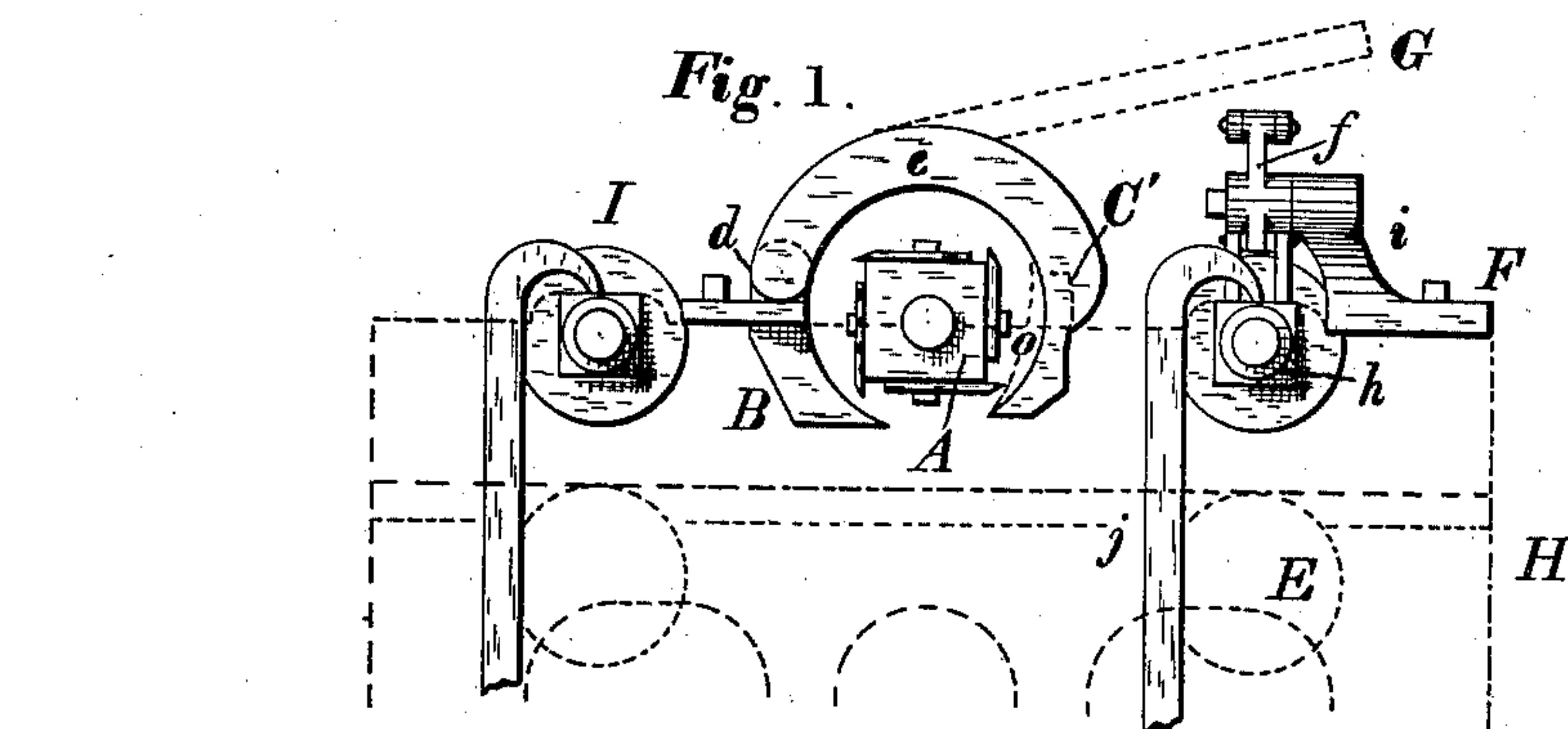


(No Model.)

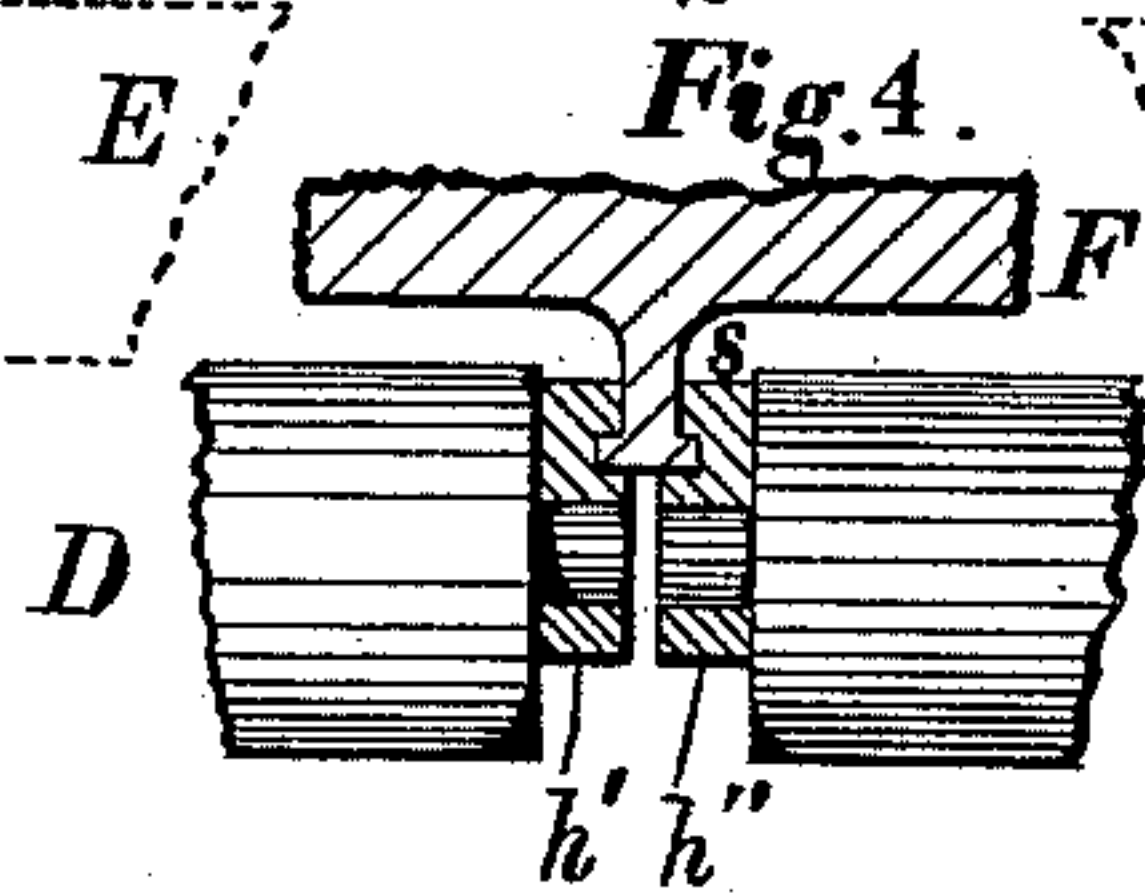
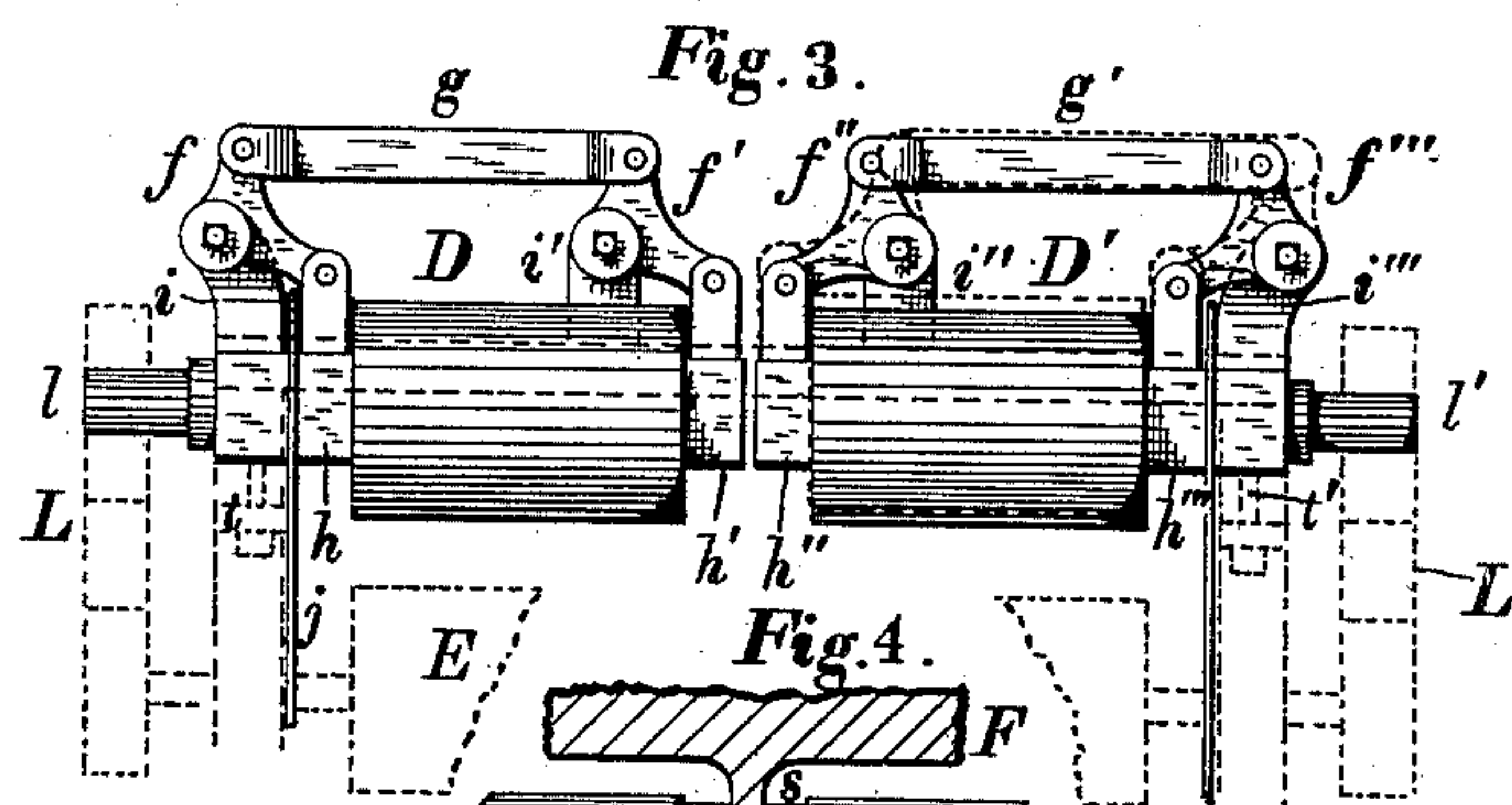
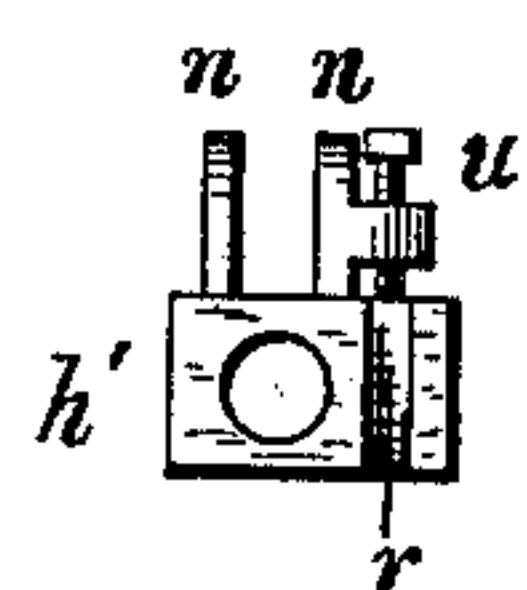
J. CONNELL.  
PLANING MACHINE.

No. 387,211.

Patented Aug. 7, 1888.



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

JOHN CONNELL, OF ROCHESTER, NEW YORK.

## PLANING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 387,211, dated August 7, 1888.

Application filed January 25, 1886. Serial No. 189,571. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN CONNELL, of Rochester, New York, have invented certain Improvements in Planing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My present invention relates to certain improvements in planing-machines designed to simplify the construction and increase the efficiency of that class of machines in which divided feed-rolls are used for the purpose of feeding two boards of unequal thickness at the same time.

My improvements are fully described and illustrated in the following specification and accompanying drawings, and the novel features thereof specified in the claims annexed to the said specification.

My improvements in planing-machines are represented in the accompanying drawings, in which—

Figure 1 is a side elevation, the side frames of the machine being represented by dotted lines. Fig. 2 is a plan view. Fig. 3 is a rear elevation of the divided feed-rolls. Fig. 4 is a horizontal section through the boxes at the inner ends of the divided rolls, showing the manner of supporting the same. Fig. 5 is an end elevation showing one of the boxes at the inner end of the divided feed-rolls and the adjusting-screw.

In the accompanying drawings, A represents the cutter-head of my improved planing-machine; B, the pressure-bar; C C', the independently-moving chip-breakers; D D', the movable feed-rolls; E, the lower feed-roll; F, the cross-bar.

The side frames of the machine are represented by the dotted lines H. The side frames are connected together by a suitable bed and cross-bars. The cutter-head A is mounted on a shaft, *k*, arranged to revolve in suitable journals or boxes on the frame of the machine.

Immediately behind the cutter-head is placed the pressure-bar B, which extends entirely across the machine, being provided with suitable lugs at either end, by which it is attached to the frames. The pressure-bar is made of such a shape, as indicated in the side elevation, Fig. 1, that it extends down in rear of the cutter, and bears upon the planed surface of the work passing through the machine

immediately behind the cutting-point of the knife.

The pressure-bar is provided with a series of lugs, *d*, to which the arms *e e* of the chip-breakers C C' are pivoted. The arms of the chip-breakers are bent upward over the cutter-head, and serve to sustain the chip-breakers in position immediately in front of the cutter-head, with their lower edges bearing on the unplanned surface of the lumber passing through the machine. The lower edge of the chip-breakers is brought as near as practicable to the cutting-point, while permitting the inner margin of the edge to swing upward on the dotted line *o* in Fig. 1, and to clear the knives.

The chip-breakers may be provided with an arm or lever, G, Fig. 1, provided with a weight, in order to hold them down on the board.

The chip-breakers C C' are independent of each other in their movements, so as to permit the feeding through the machine of boards of unequal thickness. The machine is provided with the usual discharging-rolls, I.

In front of the cutters I arrange the lower feed-roll, E, which revolves in suitable journals on the frame of the machine. Above the feed-roll E are placed the movable feed-rolls D D', which are arranged to rise and fall independently of each other by means of the boxes *h h' h<sup>2</sup> h<sup>3</sup>*, bell-cranks *f f' f<sup>2</sup> f<sup>3</sup>*, and links *g g'*. Provision is made for driving the upper feed-rolls from the lower roll, E, by means of any suitable expansion-gearing. (Indicated by the dotted lines 1 in Fig. 3.) The feed-roll D is caused to press on its work by means of a suitable weight attached to the bar *j*, the upper end of which is bent into a hook which bears on the upper surface of the box *h*, as indicated in Fig. 1. The corresponding roll, D', is caused to bear on the boards passing under it in a similar manner by means of the bar *j'*, and a weight attached directly to its lower end or to a lever pivoted thereto. The boxes *h h'* of the roll D are provided with lugs or lugs, *n*, Fig. 5, which are pivoted to the lower end of the bell-crank levers *f f'*. These levers are pivoted to suitable arms or brackets, *i i'*, on the cross-bar F, which is secured to the side frames of the machine in suitable relation with the divided feed-rolls. The upper end of the



bell-crank levers  $f f'$  are connected by the link  $g$ , the result of which arrangement is that the boxes  $h h'$  are caused to rise and fall simultaneously, and the ends of the feed-roll  $D$  are  
 5 caused to bear on the boards passing under it with an equal pressure. The feed-roll  $D$  is provided with the shaft  $l$ , which is arranged to revolve in the boxes  $h h'$ . A slight amount of longitudinal movement is permitted in the  
 10 roll, or the lugs  $n n$  may be pivoted to the boxes. The box  $h$  on the outer end of the feed-roll  $D$  slides in suitable guides or ways attached to the frame of the machine. The arms  $i i'$  on the cross-bar  $F$  reach upward and back-  
 15 ward into the proper position to sustain the centers of the bell-crank levers  $f f'$ .

The arrangement for causing the outer and inner ends of the other feed-roll,  $D'$ , to rise and fall simultaneously is substantially similar  
 20 to that already described with reference to the feed-roll  $D$ . The feed-roll  $D'$  is provided with the shaft  $l'$ , journaled in the boxes  $h^2 h^3$ , connected together by means of the bell-cranks  $f^2 f^3$  and link  $g'$ . The bell-cranks  $f^2 f^3$  are piv-  
 25 oted to the arms  $i^2 i^3$  on the cross-bar  $F$ . The feed-roll  $D'$  is caused to press on its work by a weight attached to the bar  $j'$ . In order to sustain the boxes  $h' h^2$  at the inner ends of the divided rolls, I provide each of the boxes with  
 30 a groove on its inner face,  $r$ , Fig. 5, into which groove the projecting T-shaped tongue  $s$  is fitted. The tongue is attached to or formed in one piece with the cross-bar  $F$ . This arrangement permits the boxes  $h' h^2$  to rise and  
 35 fall independently of each other.

In order to provide for adjusting the divided rolls relatively to the lower feed-roll,  $E$ , I employ the adjusting-screw  $t$ , Fig. 3, passing  
 40 through the frame and bearing on the under side of the box  $h$ . The adjustment of the inner end of the feed-roll  $D$  is effected by means of a screw,  $u$ , Figs. 2 and 5, inserted in the box or the lug attached thereto in such position  
 45 as to bear on the upper side of the T-shaped projection  $s$ . A similar arrangement is adopted with reference to the other roll,  $D'$ , which is provided with adjusting-screws  $t'$  and  $u'$ , arranged to operate in the manner already  
 50 described.

My improved planing-machine is simple and cheap in construction and has proved highly  
 55 efficient in practical operation, one of the principal advantages secured by the construction herein described being the equality of pressure on each edge of the board passing through and beneath the divided feed-rolls.

I am aware that divided or sectional chip-breakers have been heretofore used, and that pressure-bars have also been employed in con-  
 60 nection with revolving cutter-heads, and I hereby especially disclaim anything shown or described in Patents Nos. 146,500, 167,145, 303,425, and 313,885; but I am not aware that independently-movable chip-breakers located  
 65 in front of the cutter-head have been combined with a pressure-bar extending across the machine in rear of the cutter-head by arms ex-

tending over the latter and pivoted to the bar, a construction which materially lessens the cost of manufacture and increases the dura-  
 70 bility of the machine while facilitating its practical operation.

By my improved construction also the divided chip-breakers are attached to the pressure-bar in such fashion that all these parts  
 75 may be removed from the machine together by simply taking out the bolts at the ends of the pressure-bar, which secure it to the side frames, thereby affording free access to the  
 80 cutter-head.

I claim—

1. The combination, with the cutter-head  $A$ , of the pressure-bar  $B$ , extending across the machine in rear of the cutter-head, and  
 85 removably attached to the upper surfaces of the side frames at each of its ends, and the independently-movable chip-breakers  $C C'$ , provided at their ends with the arms  $e e$ , extending over the cutter-head and pivoted at  
 90 their rear ends to the pressure-bar, whereby provision is made for the simultaneous removal of the pressure-bar and the divided chip-breakers  $C C'$  from the machine, substan-  
 95 tially as described.

2. The combination, with the cutter-head  $A$ , of the pressure-bar  $B$ , extending across the machine in rear of the cutter-head, the  
 100 independently-movable chip-breakers  $C C'$ , provided with an arm or arms,  $e$ , extending over the cutter-head and pivoted at their rear ends to the pressure-bar, and the independ-  
 105 ently-movable feeding-rollers  $D D'$ , substantially as described.

3. The combination, with the lower feed-roll,  $E$ , of the movable upper feed-roll,  $D$ ,  
 110 provided at each end with boxes  $h h'$ , and bell-cranks  $f f'$ , connected together by link  $g$ , extending parallel with the axis of the roll, whereby an equal pressure is secured at each end of the roll during the rising and falling  
 115 movement, substantially as described.

4. The combination, with the lower feed-roll,  $E$ , of the independently-movable upper  
 120 feed-rolls,  $D D'$ , provided at their ends with the boxes  $h h' h^2 h^3$ , and bell-cranks  $f f' f^2 f^3$ , connected together by the links  $g g'$ , extending parallel with the axes of the rolls, whereby the upper rolls are permitted to rise and fall  
 125 independently of each other, substantially as described.

5. The combination, with the upper movable feed-roll,  $D$ , provided at its ends with the  
 130 boxes  $h h'$ , and bell-cranks  $f f'$ , connected together by the link  $g$ , of the cross-bar  $F$ , having arms  $i i'$ , extending over the rolls and supporting the pivots of the bell-cranks, substan-  
 135 tially as described.

6. The combination, with the upper feed-roll,  $D$ , provided at each end with the boxes  
 140  $h h'$ , and bell-cranks  $f f'$ , connected together by link  $g$ , of the cross-bar  $F$ , having tongue  $s$  extending inward and forming a guide for the box  $h'$ , substantially as described.

7. The combination, with the movable feed-



roll, of bearings at the ends thereof, supports  
for causing their movements in parallel lines,  
and a link or rod connecting said supports for  
causing their simultaneous movement in the  
5 same direction, substantially as described.

8. The combination, with the movable feed-  
roll, of bearings at the ends thereof, supports  
for causing their movements in parallel lines,  
a link or rod connecting said supports and  
10 causing their simultaneous movements in the  
same direction, and a weight applied to one  
of said bearings.

9. The combination, with the support for  
the material, of the presser-roll, bearings for  
the same, and levers connected to said bearings 15  
for supporting them, and a link connecting  
said levers for equalizing their motion, sub-  
stantially as described.

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Witnesses:

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