

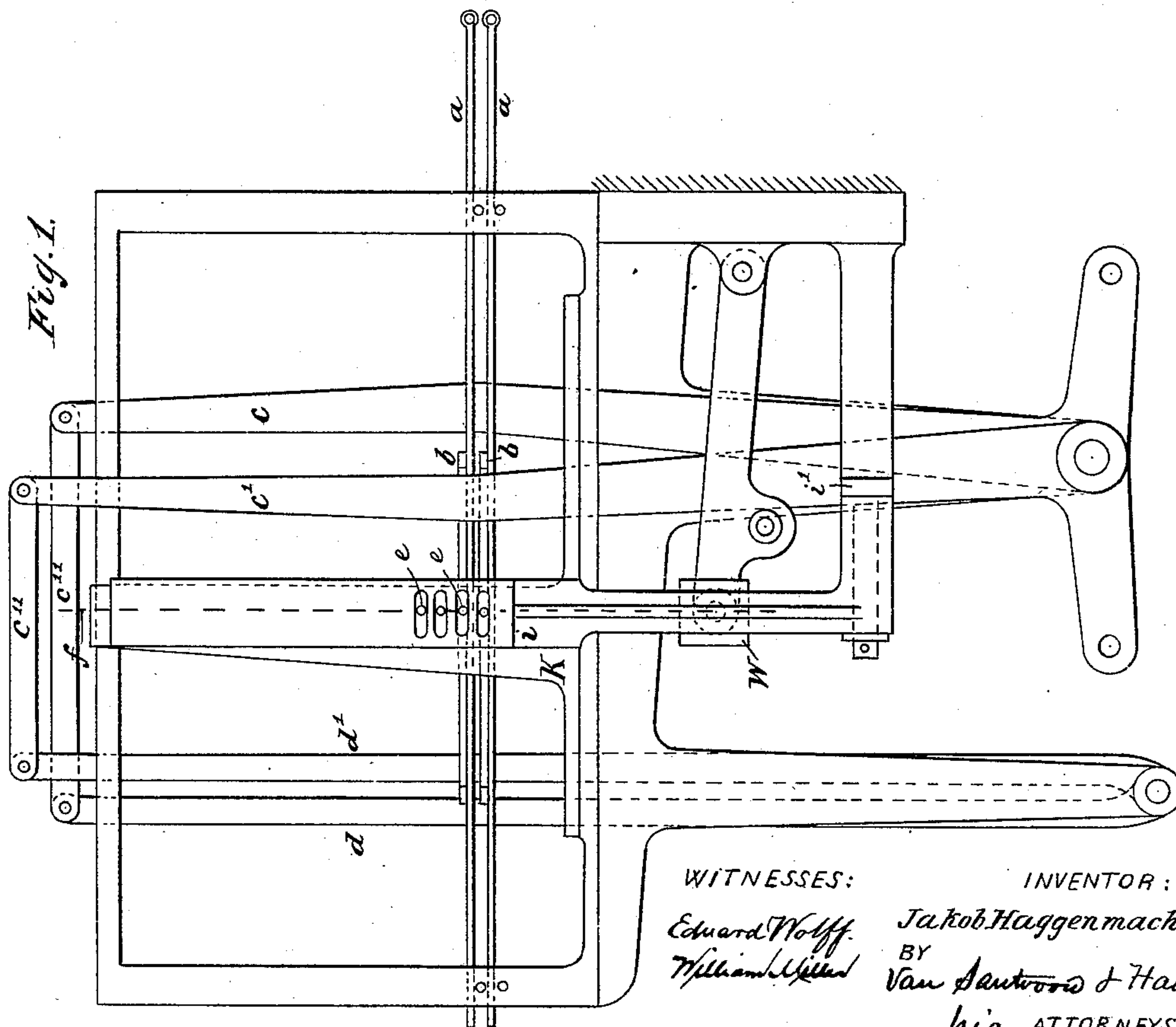
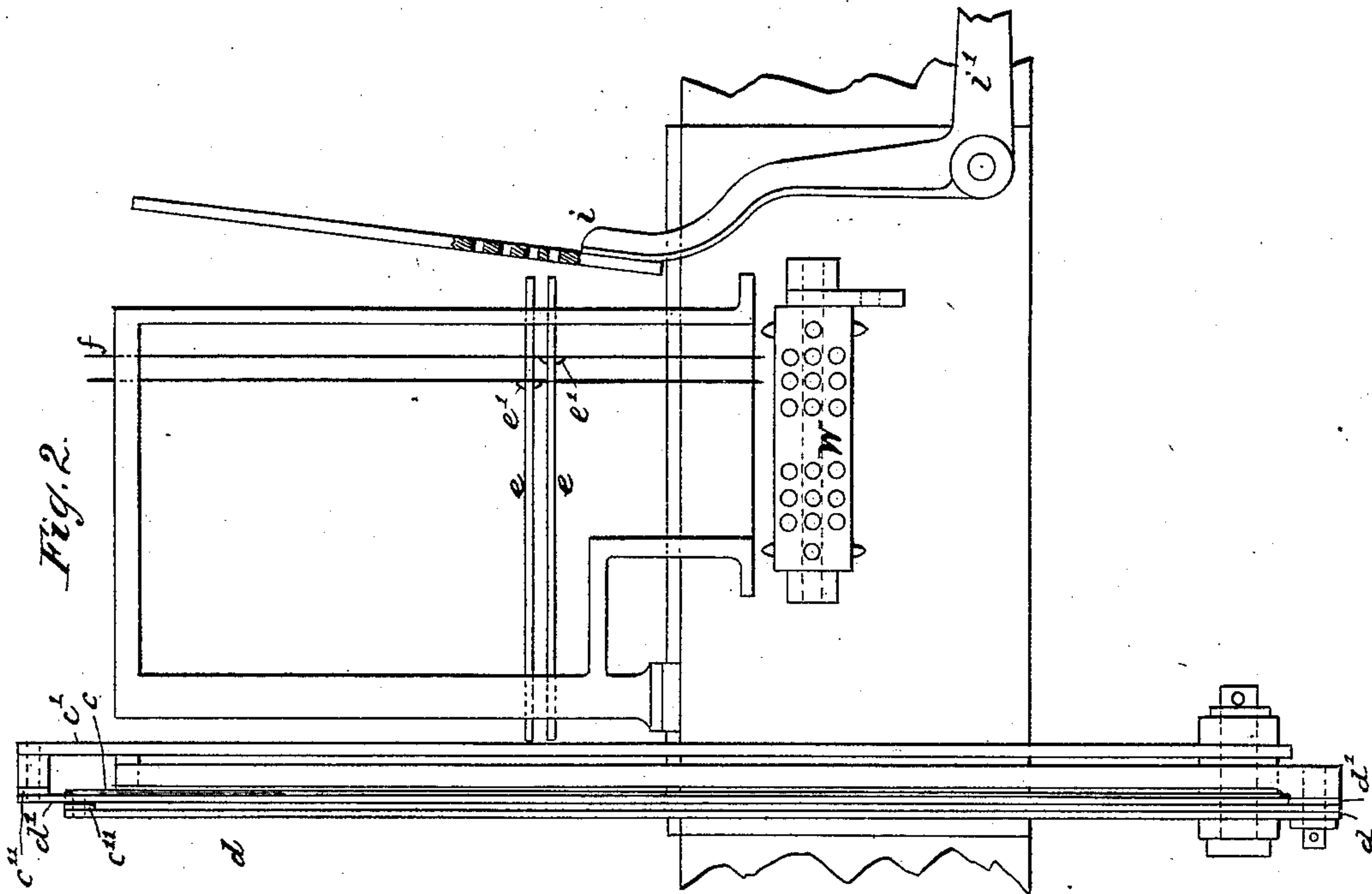
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5 Sheets—Sheet 1.

J. HAGGENMACHER.
SHEDDING MECHANISM FOR LOOMS.

No. 428,584.

Patented May 20, 1890.



WITNESSES:

Eduard Wolff.
William H. Hill.

INVENTOR:

Jakob Haggemacher.

BY

Van Santvoord & Hauff
his ATTORNEYS.

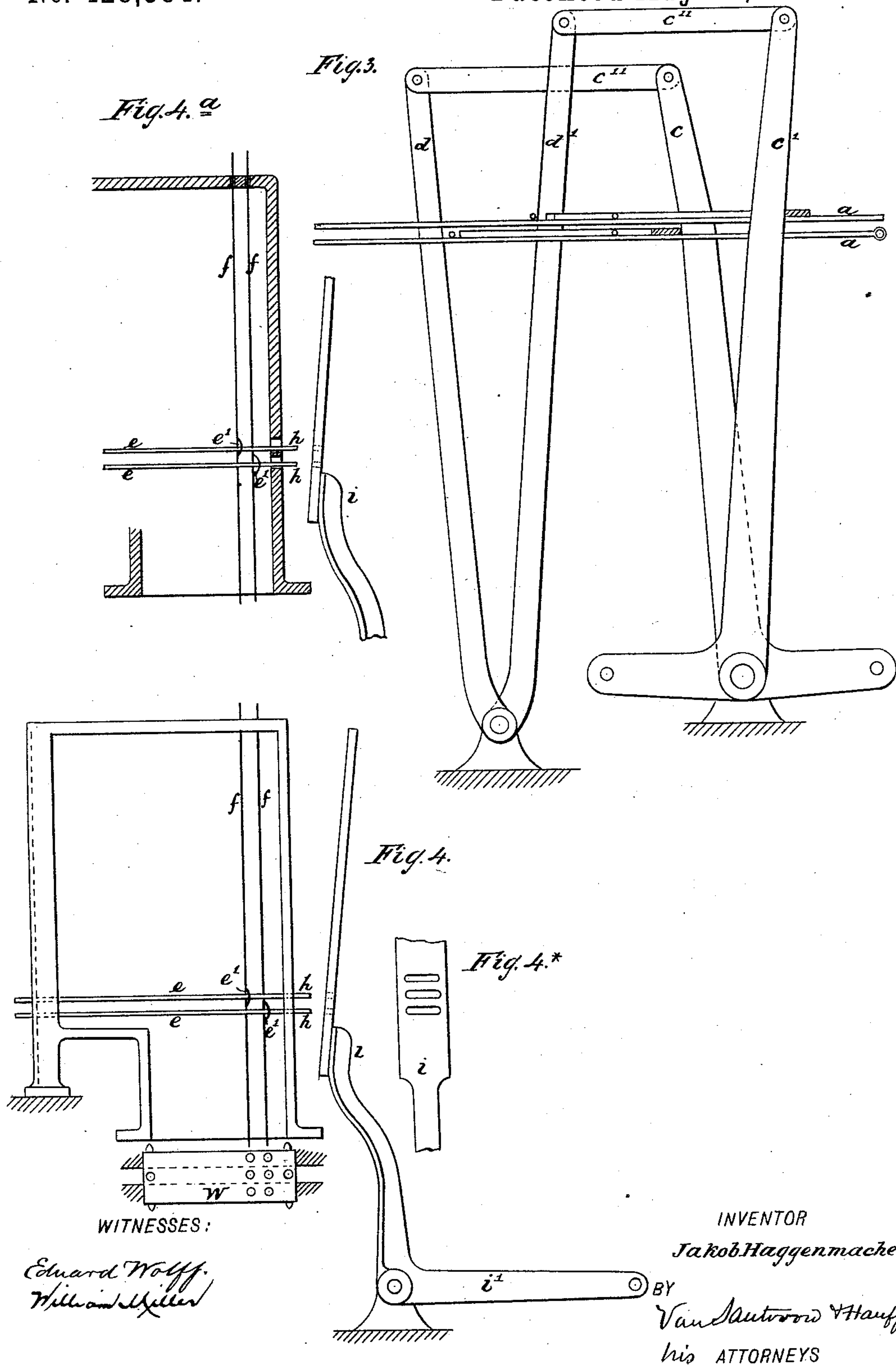
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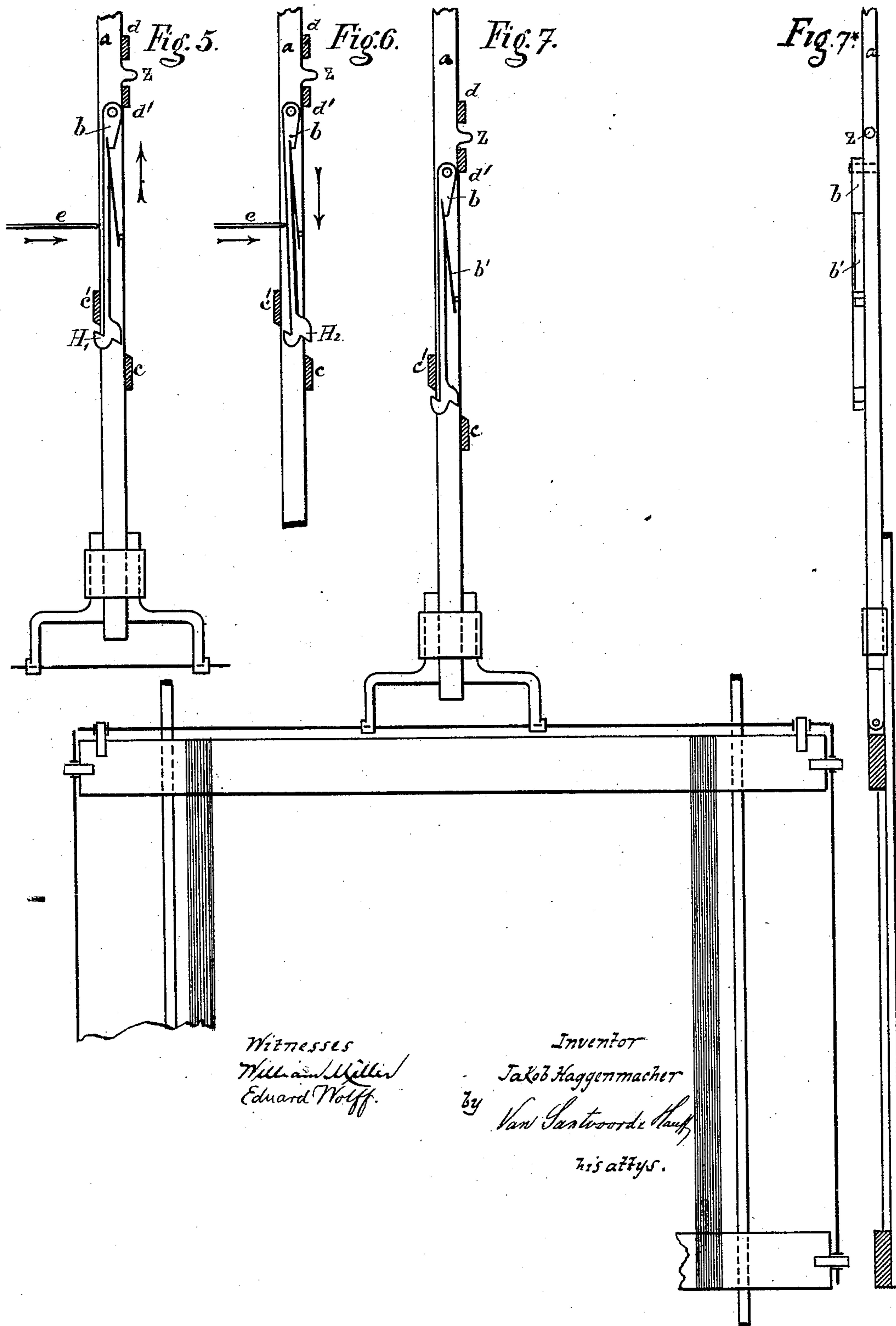
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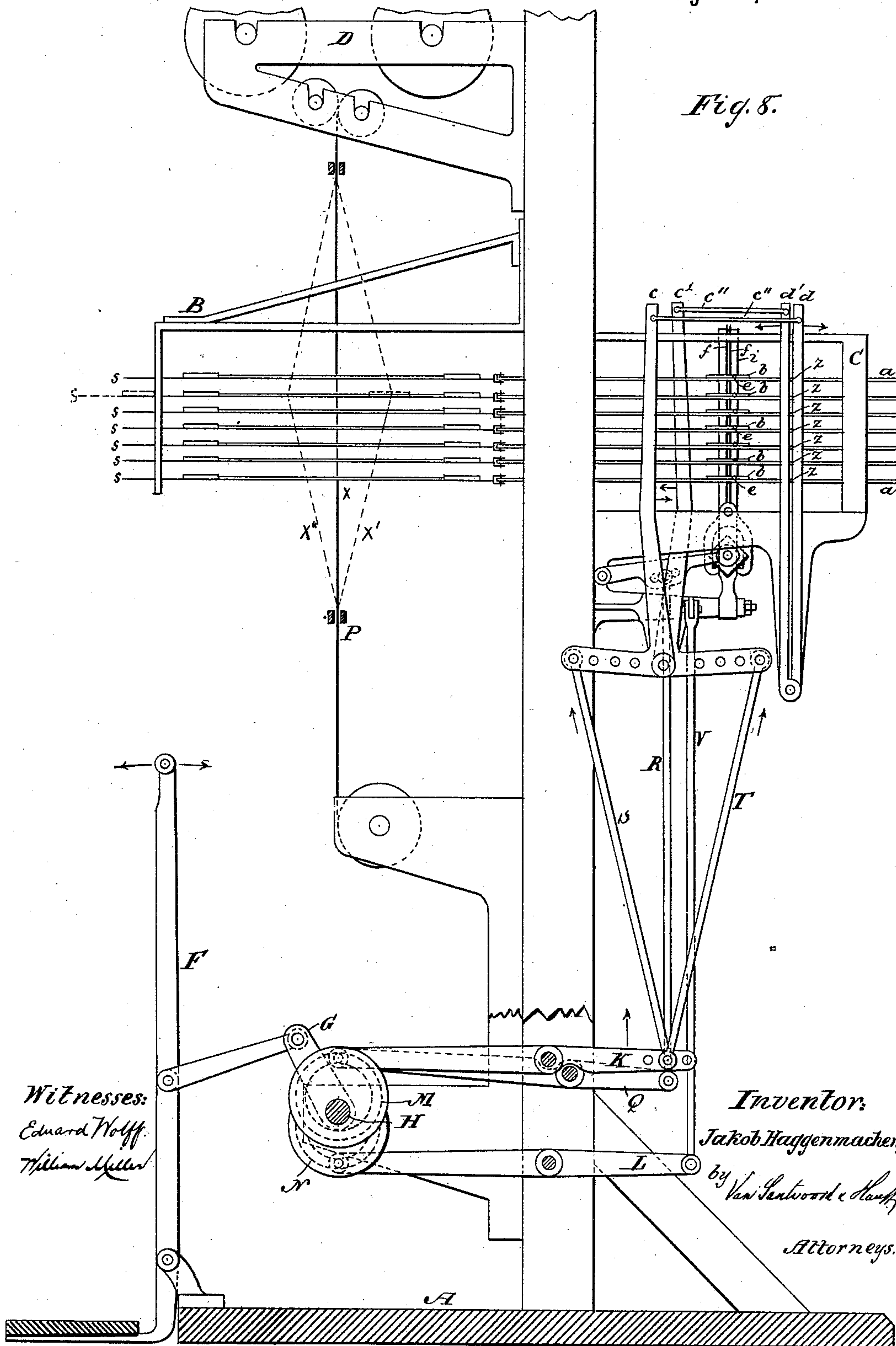
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Witnesses:

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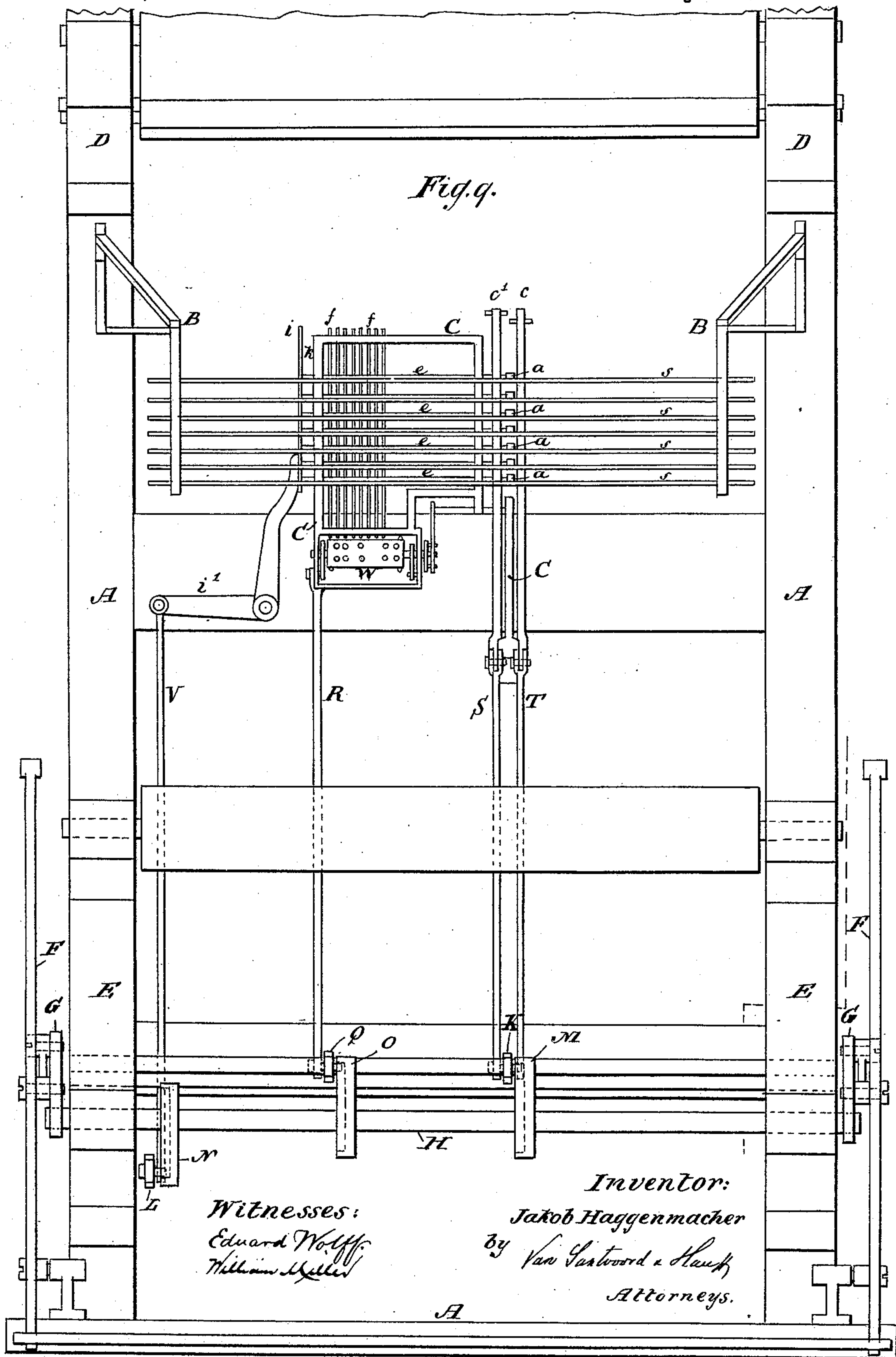
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5 Sheets—Sheet 5.

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UNITED STATES PATENT OFFICE.

JAKOB HAGGENMACHER, OF ZURICH, SWITZERLAND.

SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 428,584, dated May 20, 1890.

Application filed December 21, 1888. Serial No. 294,336. (No model.) Patented in France March 24, 1888, No. 189,567, and in Germany March 24, 1888, No. 45,914.

To all whom it may concern:

Be it known that I, JAKOB HAGGENMACHER, a citizen of Switzerland, and a resident of Zurich, Switzerland, have invented new and useful Improvements in Shedding Mechanism for Looms, (for which I have obtained patents in France, dated March 24, 1888, No. 189,567, and in Germany, dated March 24, 1888, No. 45,914,) of which the following is a specification.

10 This invention relates to an improvement in Jacquard mechanism for looms; and the invention consists in the details of construction set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a detail side elevation of part of a loom, showing a card-cylinder, needles, stickers, and blades embodying my invention. Fig. 2 is a rear elevation of the parts shown in Fig. 1, showing the striking-arm broken off and partly in section. Fig. 3 is a detail side elevation of the lifters with their actuating mechanism. Fig. 4 is a rear elevation of the parts shown in Fig. 1, showing the striking-arm, stickers, needles, and a pattern or card cylinder. Fig. 4* is a detail face view of part of the striking-arm. Fig. 4^a is a sectional side view of the frame which guides the needles and stickers. Fig. 5 is a detail sectional plan view of a leaf-bar, showing a sticker moving toward a hook. Fig. 6 is a similar view showing the sticker in contact with and having moved a hook. Fig. 7 is a similar view showing also a plan of the heddle-carrying frame. Fig. 7* is a sectional side elevation of Fig. 7. Fig. 8 is a sectional side elevation of a portion of a loom, showing my invention. Fig. 9 is a front elevation of the same.

Similar letters indicate corresponding parts.

40 The card-cylinder W moves vertically up and down and at each swing makes a quarter-turn, so as to move the card-chain along in the customary way. When the cylinder reaches the highest point of its stroke, the card with its unpierced part lifts up some of the needles *f f*, said needles being free to play a certain distance up and down. Each of these needles has an eye *e'*, Fig. 4, through which a sticker *e* is inserted. The stickers *e* are supported
50 at one end in slots in the frame-work, Fig. 4^a,

so that the needles *f* can impart vertical play to such ends of the stickers. When the stickers have been raised, the flat arm of the lever *i i'* strikes the ends of the stickers that are raised, the stickers not raised being received 55 in the perforated portions of the arm *i*, so that the unraised stickers are not moved out of position by the arm *i*. In front of the opposite ends of the stickers is a series of leaf-bars *a*. Each leaf-bar is moved in a horizontal path 60 and carries a double-hooked wire *b*, which is pressed by the spring *b'* against the sticker, and if the latter is not struck by the arm *i* the spring presses the sticker and the hooked wire back, or to the position shown in Fig. 5. 65 In this position the hook *H'* stands out on one side of the leaf-bar, and by the action of the blade *c'* on the hook *H'* the said bar *a* is drawn in one direction, the lifting-blade *c'* acting against the hook *H'*; but if the sticker 70 is driven against the hooked wire by the arm *i*, so that the pressure of the spring is overcome, the other hook *H²* projects beyond the side of the leaf-bar, and the lifting-blade *c* presses said bar in the other direction. 75

The hooks are undercut, as seen in Figs. 5, 6, and 7, and the blades *c c'* have their contact-faces beveled or constructed to enter and engage the undercut parts of the hooks, so that a hook and blade remain in engagement 80 after the sticker has been withdrawn.

The disengagement of the hook and blade does not occur until the blade commences its return motion. The return of the leaf-bars is effected through tappets Z on the same, 85 which tappets are engaged by a second pair of lifting-blades *d d'* to bring the bars back to their normal position.

The blades *c c'* and *d d'* are connected by links *c''*. Motion is imparted to the blades 90 by suitable mechanism, hereinafter described.

I have found it of advantage to make the blades *d d'* of greater length than the corresponding blades *c c'*, since by such lengthening of the blades *d d'* the spreading of the 95 same can be made to give increased space for the movements or oscillations of the tappets Z, so that in forming the sheds the releasing-blades *d d'* pass slightly ahead of the tappets Z aforesaid, and thus do not obstruct the free 100

movements of the leaf-bars. The blades return after a slight pause and the connection of the hooks $H^1 H^2$ and the blades $c c'$ is broken.

The releasing-blades $d d'$ then strike the tappets Z and drive the bars back to their original position.

Figs. 8 and 9 show a Jacquard loom provided with my invention and having a vertical warp. A is the loom-frame with brackets or supports $D D$, carrying the warp-beam, from which the warp is drawn. The main shaft H is rotated by means of the crank G and lever F . The shaft H imparts motion to the grooved disks $M N O$, which oscillate the levers $K L Q$. The lever K , connected by links $S T$ with the blades $c c'$, causes said blades, as also the blades $d d'$, through the links $c'' c''$, to oscillate. The lever L , connected by link V to the striking-arm $i i'$, oscillates said striking-arm at the proper moments, and the lever Q , with its link R , moves the card-cylinder up and down. The motions of the card-cylinder, striking-arm, and blades operate the needles, stickers, and leaf-bar, as above described. Starting from the position shown in Fig. 8, the next movement of the links $S T$ will cause the blades $c c' d d'$ to move in the direction of the arrows indicated at said blades. If any hook H^1 should be in the path of the blade c' , Fig. 8, said hook, with

its leaf-bar, will move the heddle s from the position indicated by line x , Fig. 8, to that indicated by line x'' . If a hook H^2 is in the path of the blade c , said hook, with its leaf-bar, will move heddle s to the position x' . On the return of the blades $c c'$ to the position shown in Fig. 8 the blades $d d'$ engage the tappets Z and move the leaf-bars and heddles back to their middle position. (Indicated at x .)

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the leaf-bar a , of reciprocating blades $c c'$, a double-hooked arm or wire b for connecting the leaf-bar and blades, a spring b' , a lever $i i'$, and a sticker e for communicating motion from the lever to the arm or wire, substantially as described.

2. The combination, with the leaf-bar a , the hooked wire b , and the spring b' , of the lever $i i'$, the sticker e for communicating motion from the lever to the wire, the blades $c c'$, the needles f , and the cylinder W , substantially as described.

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

JAKOB HÄGGENMÄCHER.

Witnesses:

ROB. WESTERMANN,
FRITZ FUNDWEILE.