

No. 610,464

Patented Sept. 6, 1898.

A. WENNING & C. H. GÉGAUFF.
COMBING MACHINE.

(Application filed Nov. 10, 1896.)

(No Model)

2 Sheets—Sheet 1.

Fig. X.

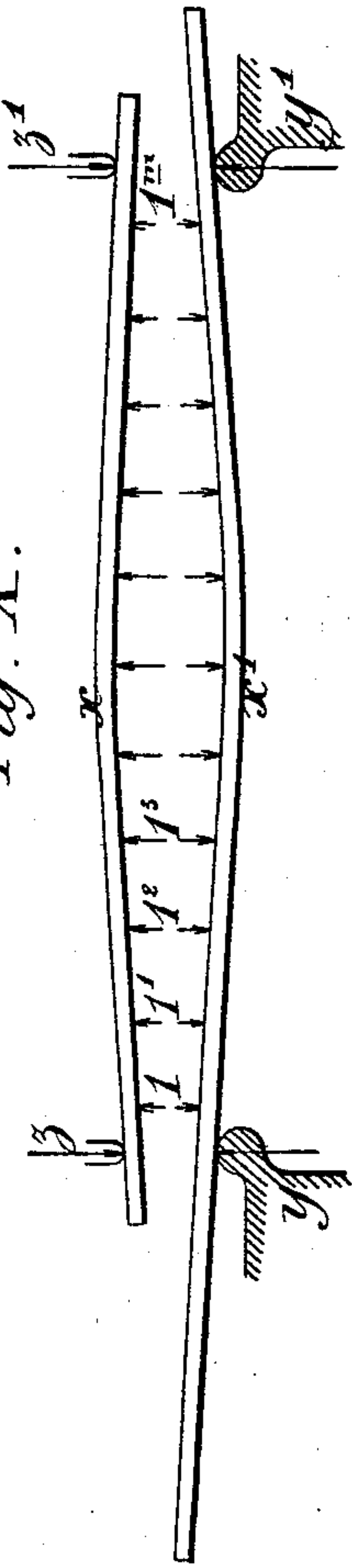


Fig. 2.

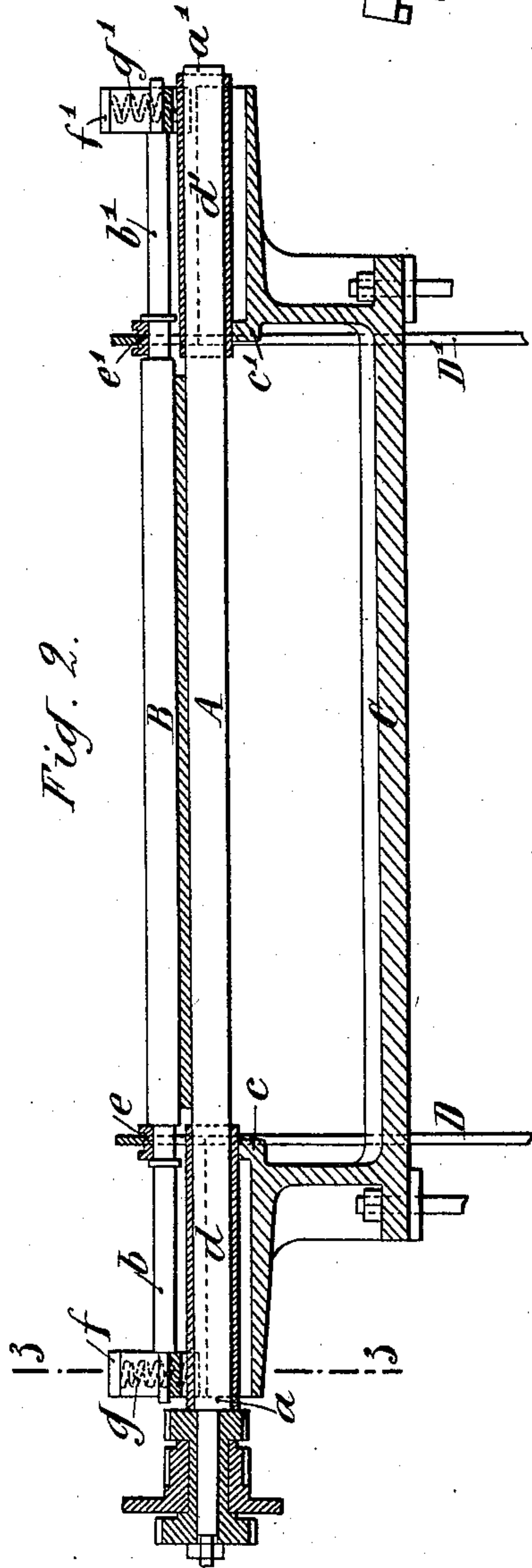


Fig. 1.

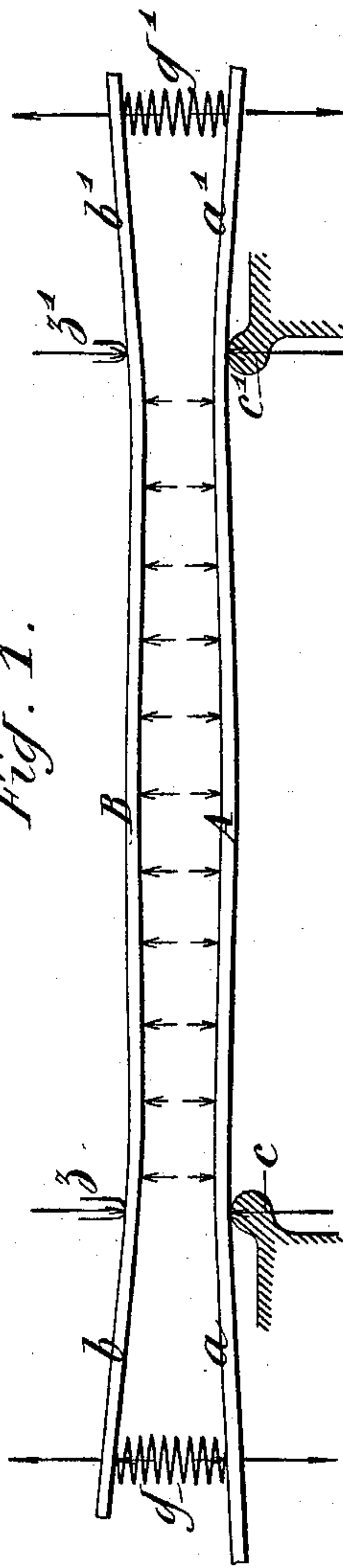
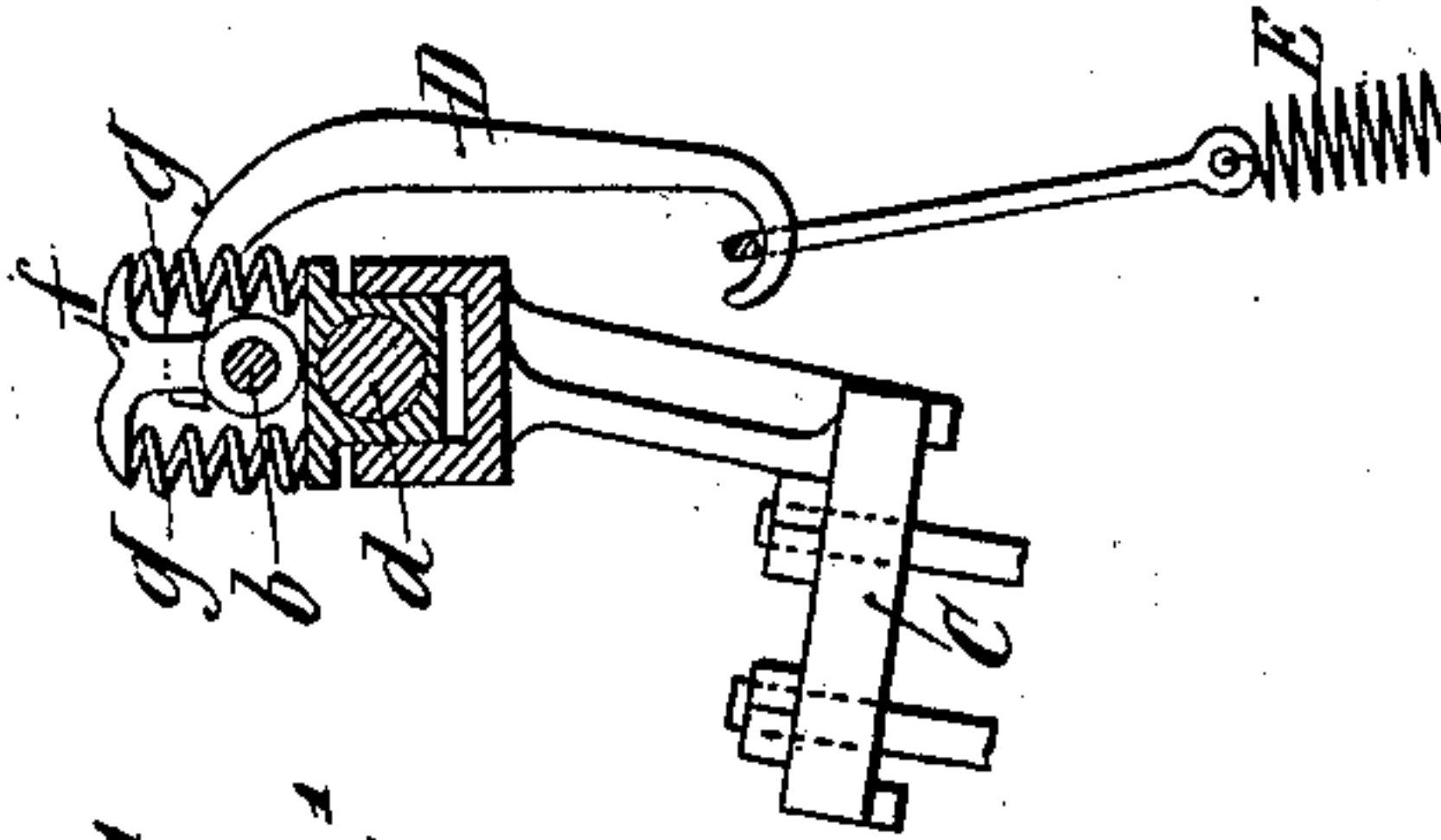


Fig. 3.



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2 Sheets—Sheet 2,

Fig. 6.

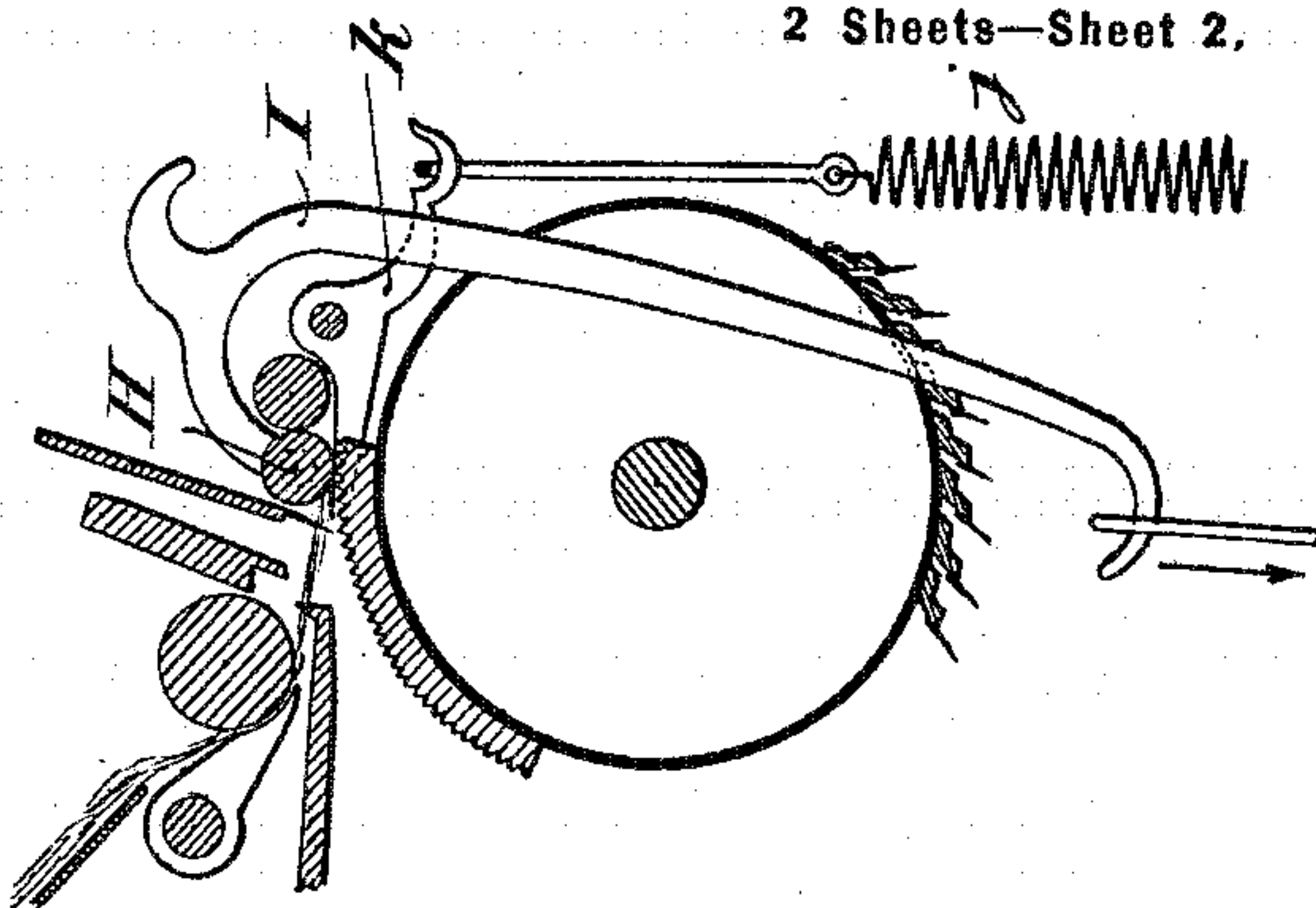


Fig. 4.

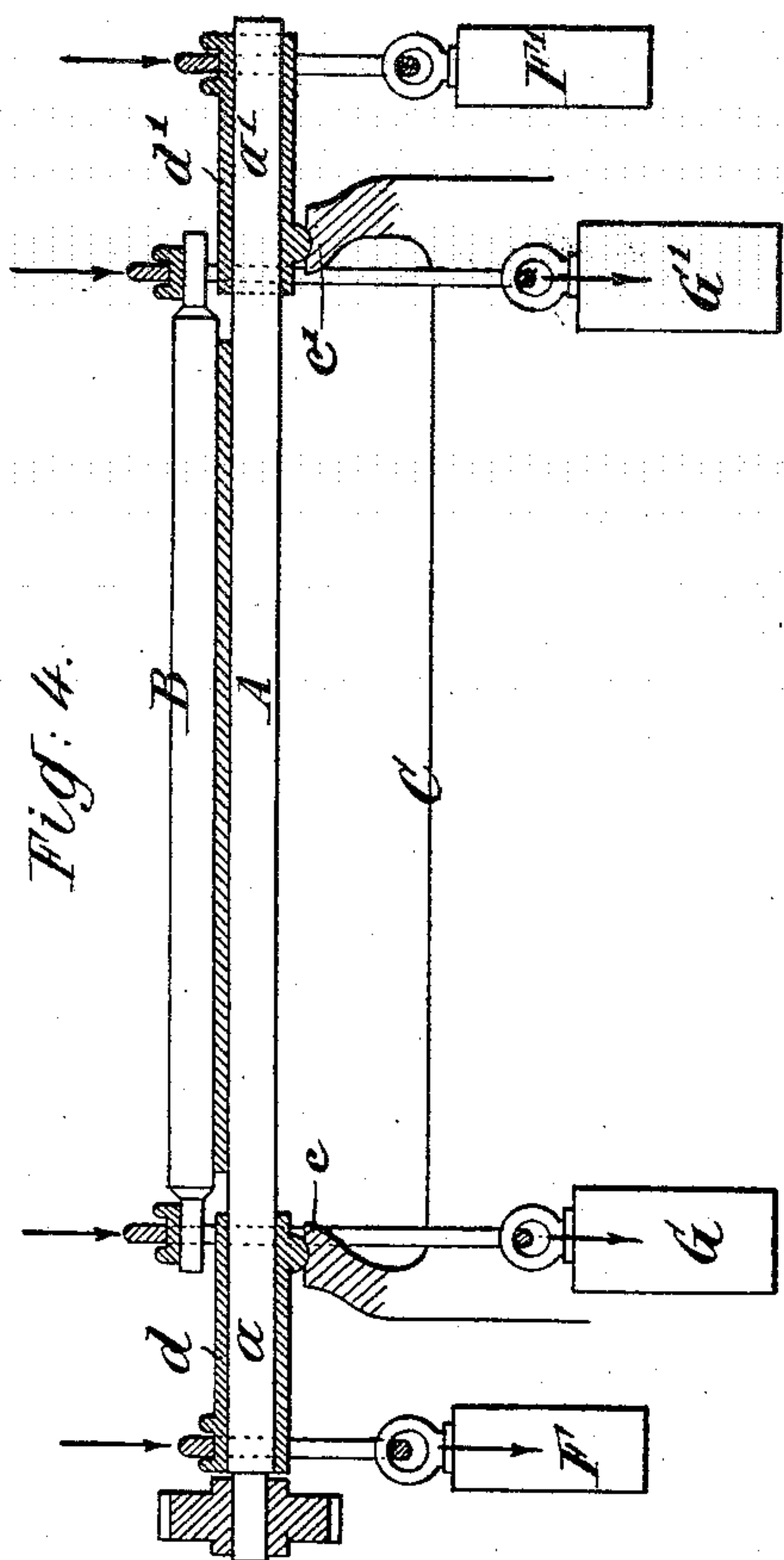
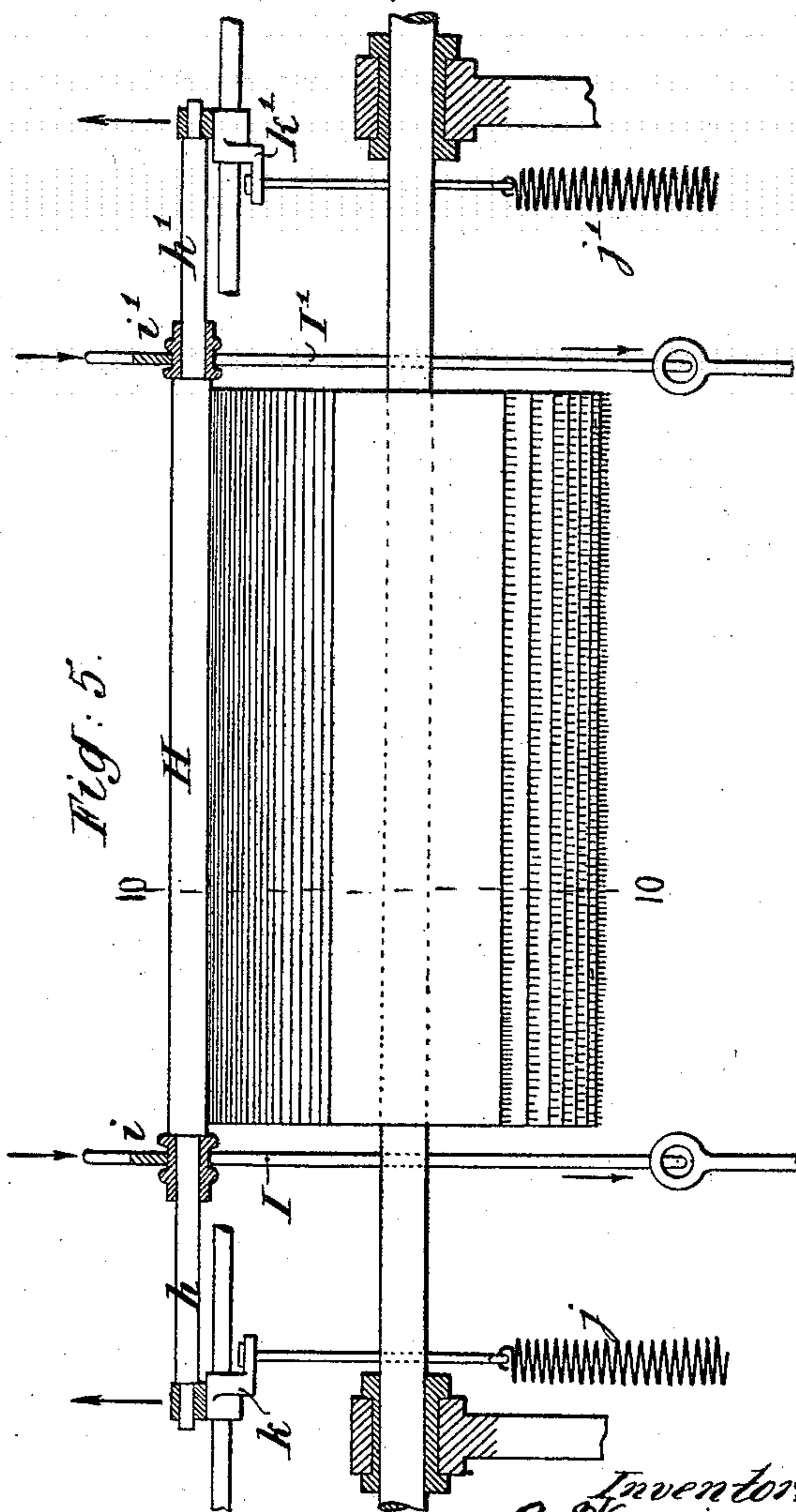


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALFRED WENNING AND CHARLES HUBERT GÉGAUFF, OF MULHOUSE, GERMANY, ASSIGNORS TO LA SOCIÉTÉ ALSACIENNE DE CONSTRUCTIONS MÉCANIQUES, OF SAME PLACE.

COMBING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 610,464, dated September 6, 1898.

Application filed November 10, 1896. Serial No. 611,636. (No model.) Patented in France August 22, 1896, No. 259,090; in Germany August 23, 1896, No. 92,093, and in England August 27, 1896, No. 18,967.

To all whom it may concern:

Be it known that we, ALFRED WENNING and CHARLES HUBERT GÉGAUFF, engineers, subjects of the Emperor of Germany, residing in Mulhouse, Germany, have invented certain new and useful Improvements in Combing-Machines, (which have been patented in France August 22, 1896, No. 259,090; in Germany August 23, 1896, No. 92,093, and in Great Britain August 27, 1896, No. 18,967,) of which the following is a specification.

The improvements in combing-machines which form the subject of the present application consist, more especially, in an arrangement of drawing mechanism by means of which larger widths of material may be operated upon than in the machines at present in use. These last-named machines operate, in effect, upon surfaces of limited width, because of the necessity for giving to the fluted drawing-rollers a small diameter in order that the nip of the rollers may be near to the fixed comb and so that the production of noils may be consequently diminished. The rollers thus arranged present only the minimum of resistance to the flexion produced by the pressure exerted on them in the act of drawing, this flexion being such in a machine with great distance between the supports or bearings of the drawing-rollers that the nipping power at the middle of their length is that the flexion of the said rollers is obviated, so that the breadth of the machine may be increased without inconvenience, and consequently a larger output can be obtained.

In the accompanying drawings, Diagram X represents, diagrammatically, the arrangement of rollers hitherto employed. Figure 1 shows, diagrammatically, the proposed new arrangement. Fig. 2 shows in longitudinal vertical section a practical realization of the invention. Fig. 3 is a cross-section on the line 3 3, Fig. 2. Fig. 4 represents a slight modification of the arrangement shown at Fig. 2. Fig. 5 shows in longitudinal section, and Fig. 6 in cross-section on line 10 10, Fig. 5, the application of the new arrangement to combing-machines of the Heilmann type. Figs. 7, 8, and 9 relate to various applications

of the invention and will be more fully referred to hereinafter.

Referring now to Diagram X, x and x' represent the drawing-rollers, and $y y'$ the bearings for these rollers. It will be seen that the forces $1\ 1'\ 1^2\ 1^3$ (which are uniformly divided on the rollers x and x') represent the action of the leather apron between the rollers. The sum of these forces is evidently equal to the sum of the pressures z and z' applied to the upper roller x . Under the influence of these forces the drawing-rollers $x\ x'$ tend to curve or bend, as shown, and the nipping of the fibers, though efficient at the two extremities of the rollers, fails at the middle of their length. It is this fact which has hitherto necessitated the rollers being of a limited length.

In carrying out this invention the journals $a\ a'$ of the lower drawing-roller A and the like parts $b\ b'$ of the upper roller B, Figs. 1 and 2, are prolonged, and the journals $a\ a'$ enter long sleeves $d\ d'$, which serve to support them, in this sense, that they are carried by the frame C at the points c and c' adjacent to the inner extremities of the sleeves and immediately below the points $e\ e'$, where the application of the pressures $z\ z'$, Fig. 1, on the upper drawing-roller B is made. The roller B receives, at the points $e\ e'$, the pressure of the forces $z\ z'$ through a system of hooks, one of which, D, is shown in Fig. 3 and which are acted upon by coiled springs E. These forces act then, on the one hand, on the outer extremity of the sleeves $d\ d'$ of the roller A and, on the other hand, on the extremities of the journals $b\ b'$ of the roller B by means of the T-pieces $f\ f'$, which are fitted with springs $g\ g'$, which press on the bearings of the roller B.

In the diagrammatic Fig. 1 the springs $g\ g'$ alone are represented and are assumed to be situated between the journals of both rollers. The rotation of the rollers A and B is caused by a system of gearing in any convenient manner.

It will be seen that the springs $g\ g'$, Fig. 1, act in a manner so as to counteract the tendency of the rollers to bend, caused by the drag or action of the leather apron, as indicated in Diagram X, and that by a judicious

choice of forces and of dimensions a uniform nipping action can thus be given at all points in the length of the nipping-surface. Instead of acting by the antagonistic force produced by the springs $g g'$ on the rollers A and B it is possible to act on the lower roller in the manner indicated at Fig. 4. In this modification the sleeves $d d'$ are supported at the points $c c'$ on the frame C, which may be either fixed or movable, and at their outer ends carry weights $F F'$ or it may be springs. In this case the journals of the roller B are not prolonged and the pressure is obtained by weights $G G'$ in the usual way. It may be here remarked that in some cases only one of the journals of one roller need receive the pressure above described.

So far reference has been made only to machines with fixed drawing-rollers; but the invention may be equally well applied to machines of the Heilmann type, as is indicated in Figs. 5 and 6. In these figures the movable drawing-roller H is pressed down at the points $i i'$ by hooks $I I'$, which carry weights or are acted on by springs, and the prolonged journals $h h'$ receive a vertical force or pressure produced by springs or weights $j j'$ acting on levers $k k'$. The springs or weights $j j'$ produce the same effect as the springs $g g'$ above mentioned. It is the same with the weights or springs which act on the points $i i'$, which points correspond to those $e e'$ already named.

What we claim is—

1. The combination of two drawing-rollers, bearings therefor, pressure-exerting devices located at the ends of the rollers and tending to force said ends apart, and additional pressure-exerting devices engaging one of the rollers between its ends and tending to force

said roller toward the other roller, substantially as described.

2. The combination of two drawing-rollers, and their bearings, a pressure-exerting device at each end of one of the rollers, and additional pressure-exerting devices between said end pressure devices, all of said pressure-exerting devices acting transversely of the rollers even when the said rollers are stationary, substantially as described.

3. The combination of two drawing-rollers, and their bearings, a pressure-exerting device at each end of one of the rollers, and additional pressure-exerting devices acting on the same roller between said end pressure devices, substantially as described.

4. The combination of two drawing-rollers and their bearings, a pressure-exerting device at each end of one of the rollers, and additional pressure-exerting devices acting on the same roller between said end pressure devices, and in the opposite direction thereto, substantially as described.

5. The combination of two drawing-rollers, bearings therefor, springs interposed between the bearings of different rollers and tending to force them apart, and additional pressure-exerting devices engaging one of the rollers between the bearings and tending to force said roller toward the other roller, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALFRED WENNING.
CHARLES HUBERT GÉGAUFF.

Witnesses:

FRANZ CONRAD,
ADOLF SCHUHMACHER.