

No. 819,573. H. MILLER. PATENTED MAY 1, 1906.
INTERCHANGEABLE AND ADJUSTABLE HAND, BAND, AND JIG SAW FILING
MACHINE.

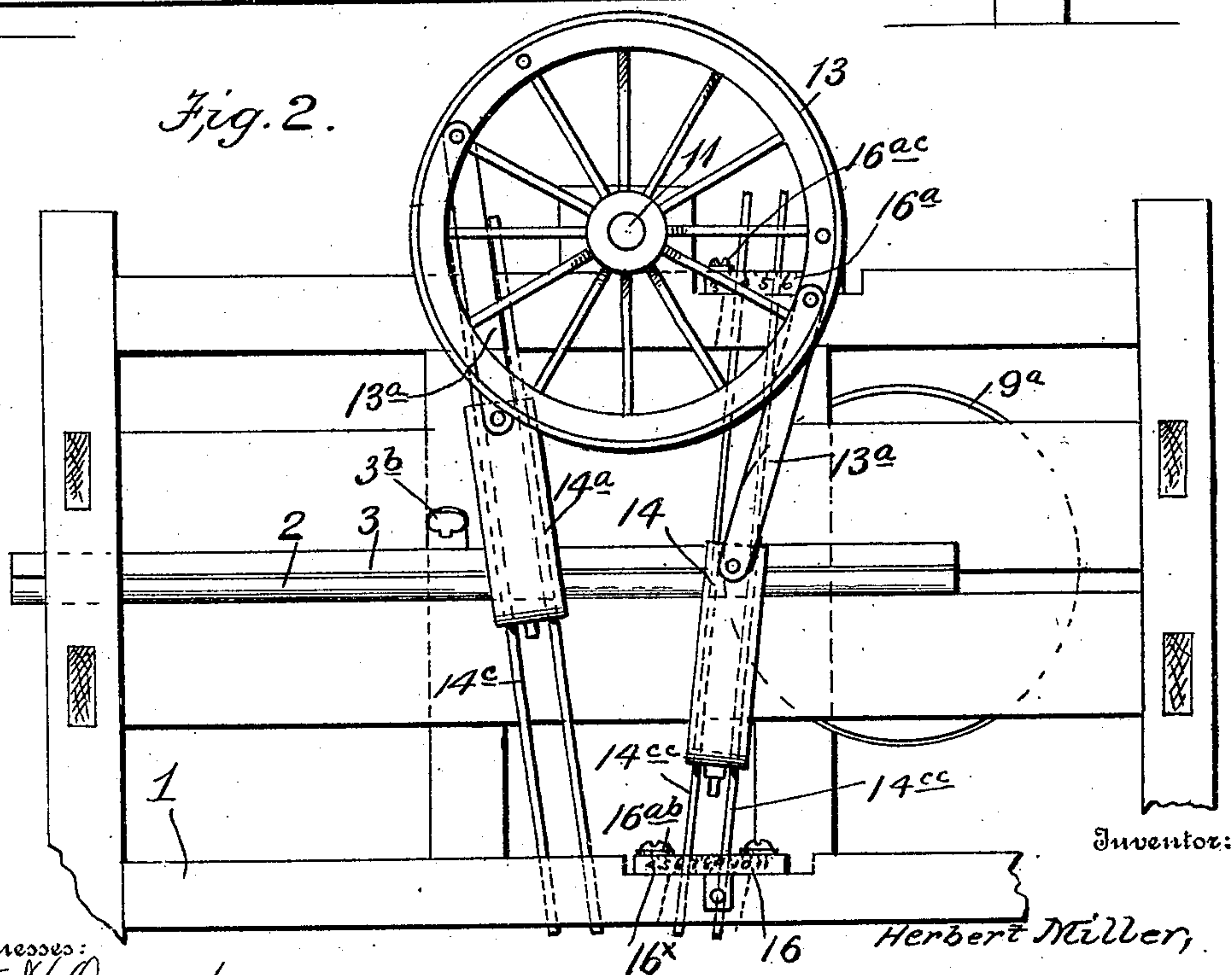
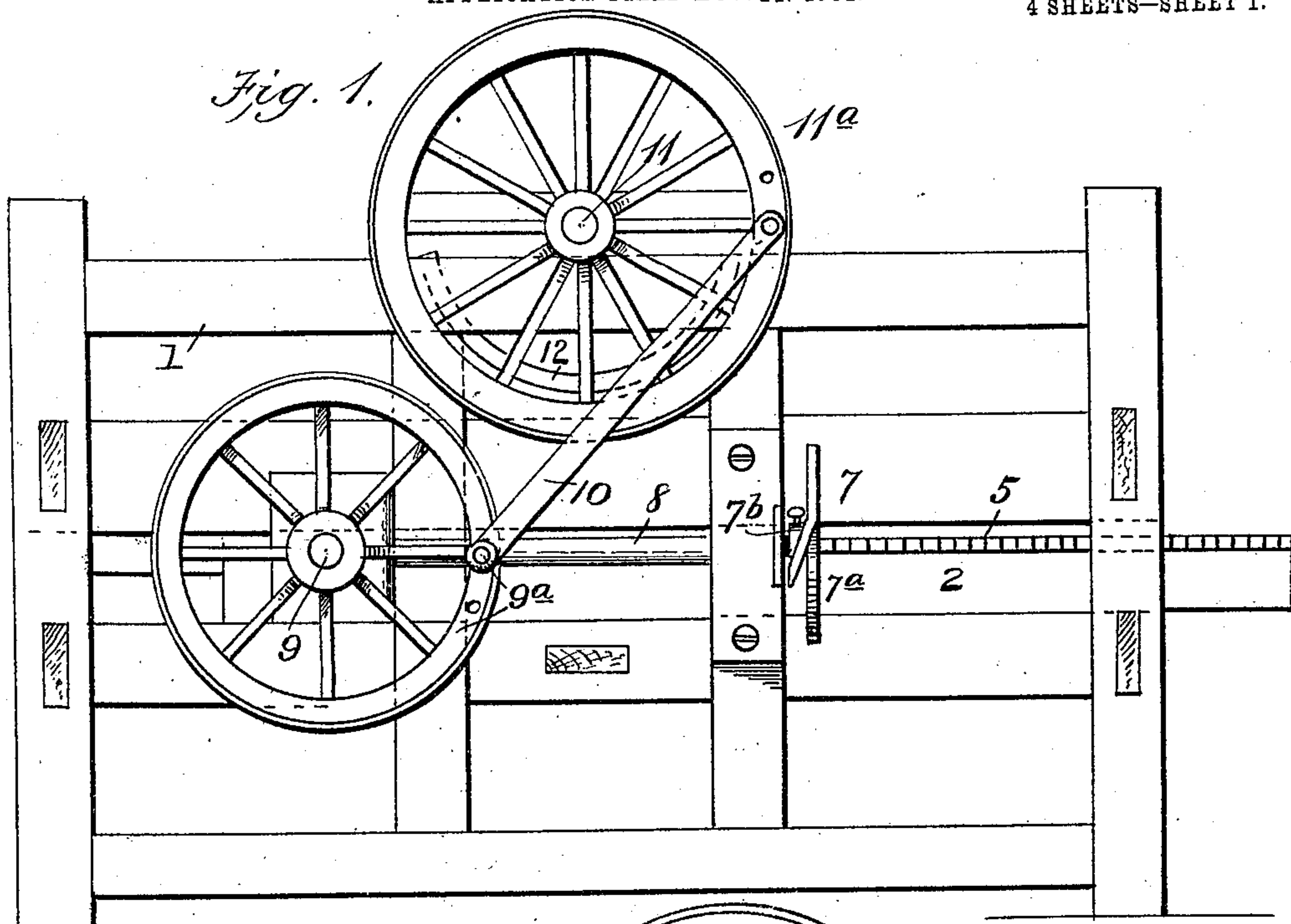
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MACHINE.

APPLICATION FILED AUG. 24, 1904.

4 SHEETS—SHEET 1.



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4 SHEETS—SHEET 2.

Fig. 3.

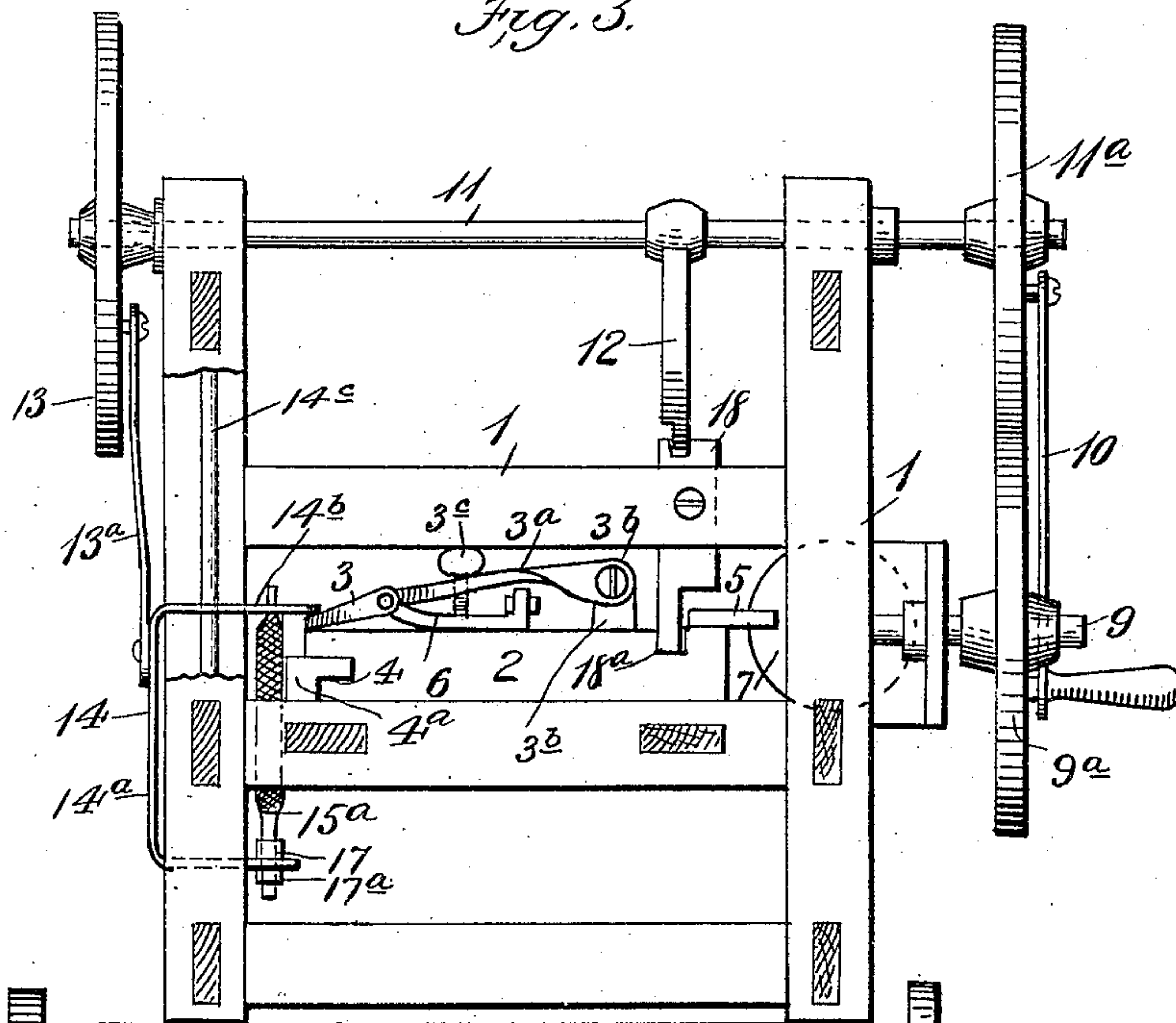
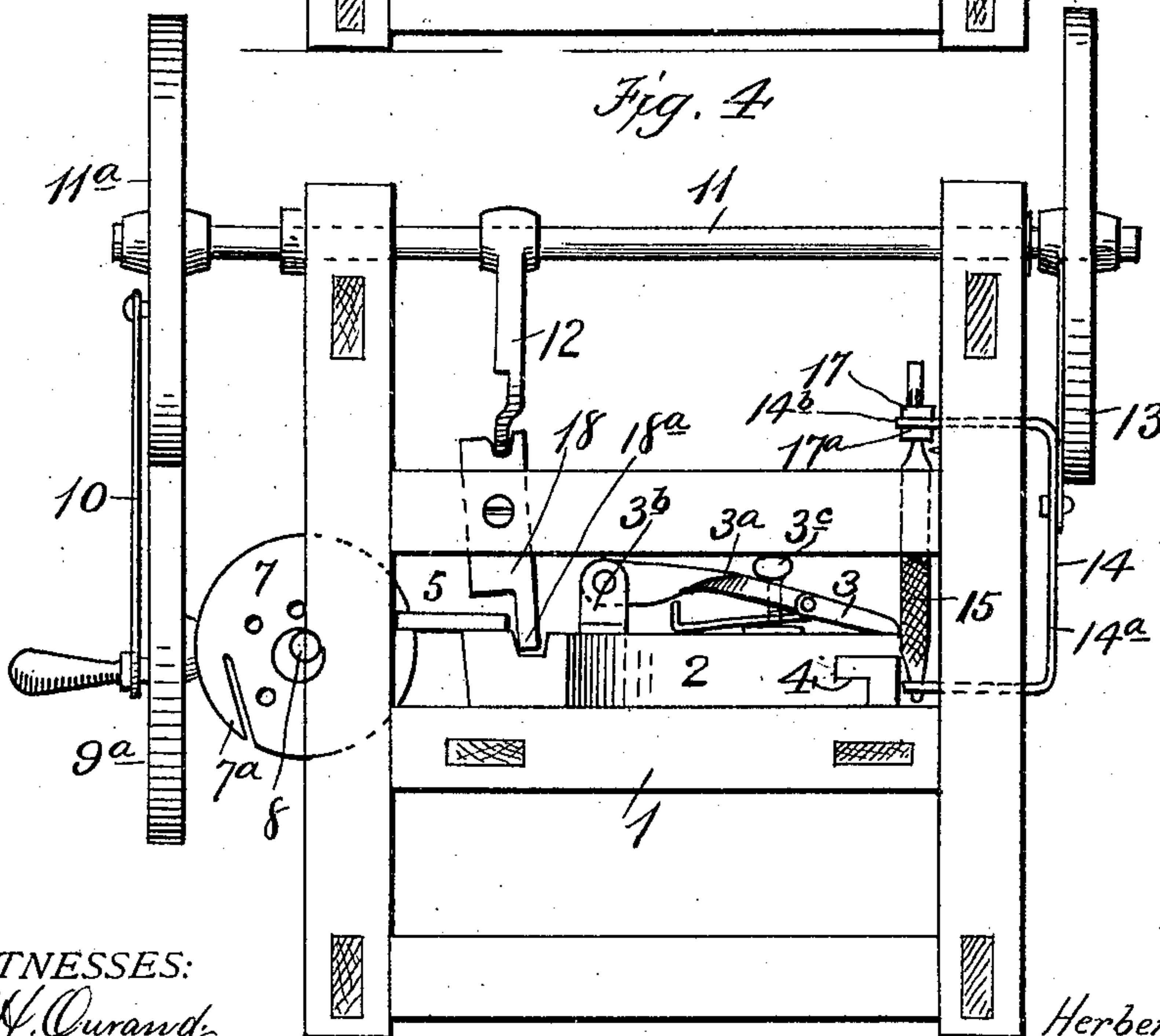


Fig. 4.



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4 SHEETS—SHEET 3.

Fig. 5.

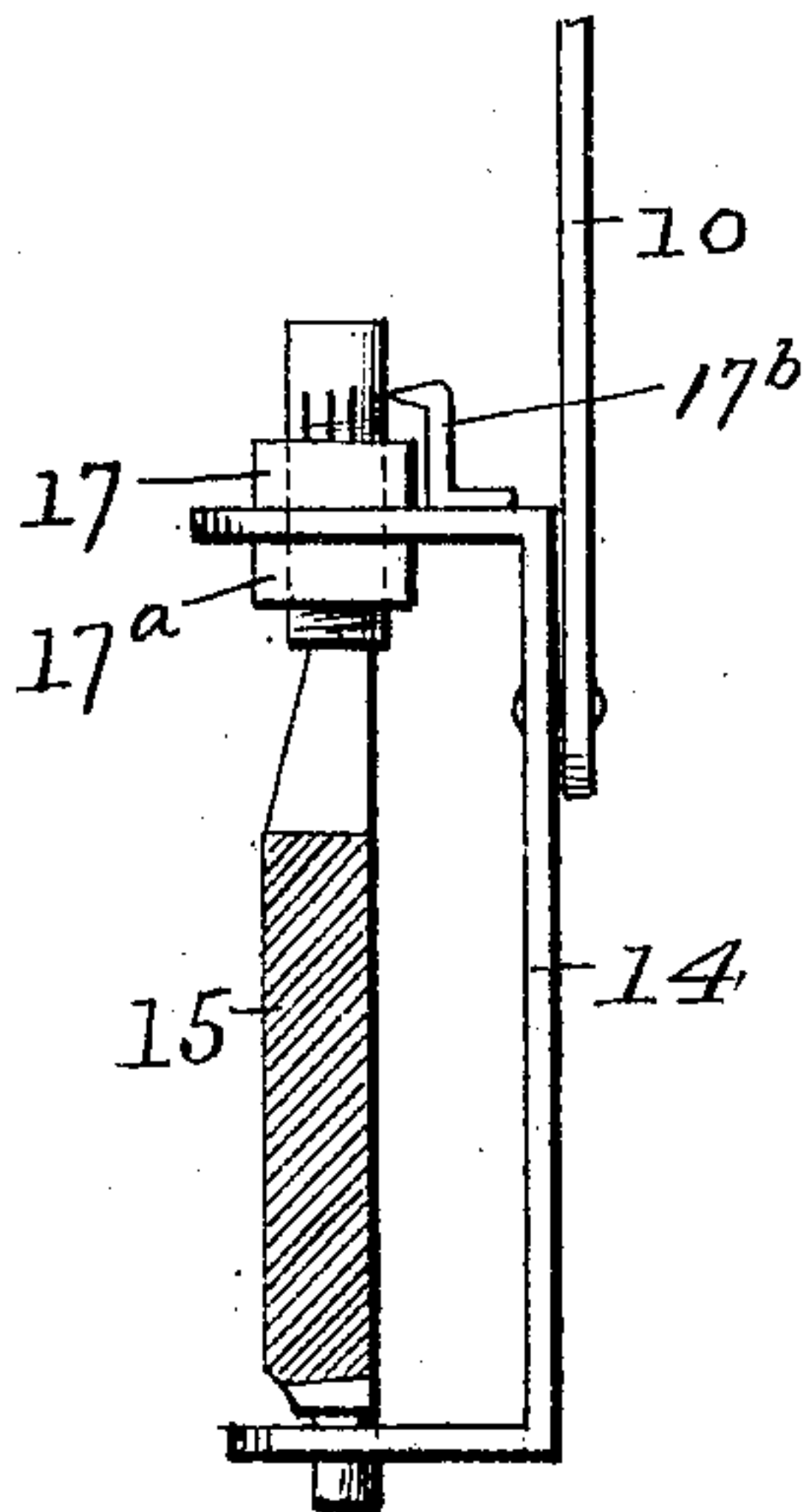
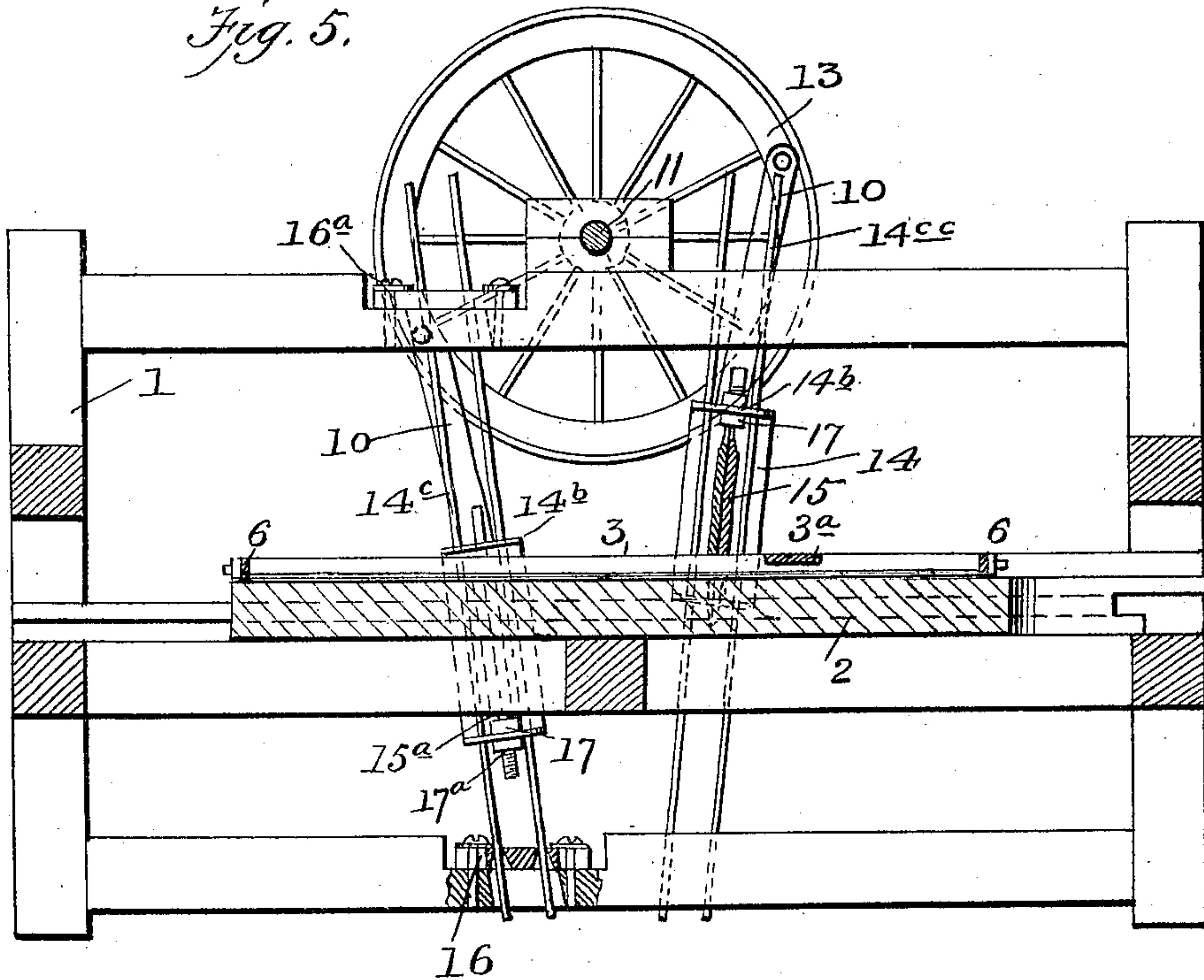


Fig. 8.

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4 SHEETS—SHEET 4.

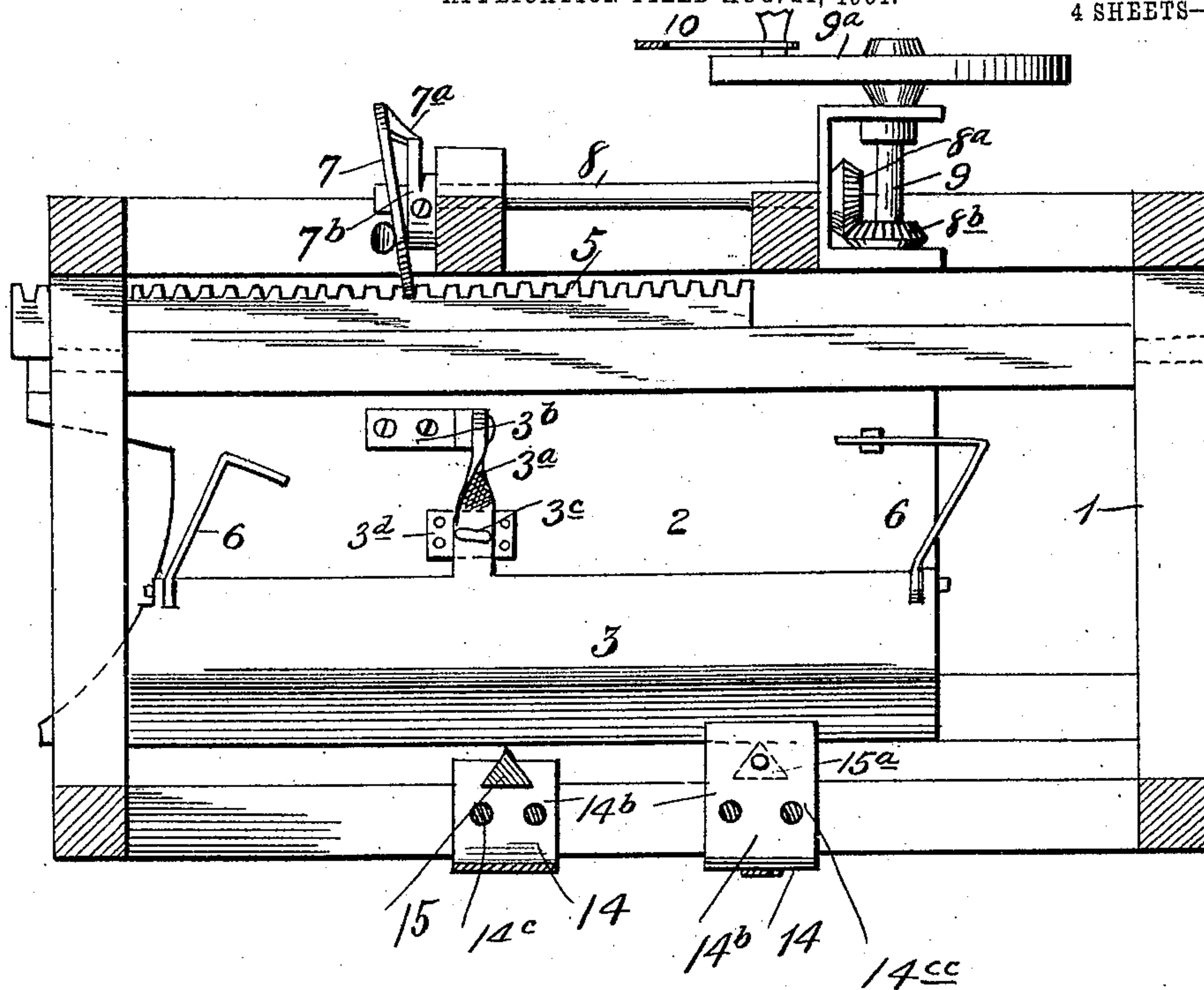


Fig. 6.

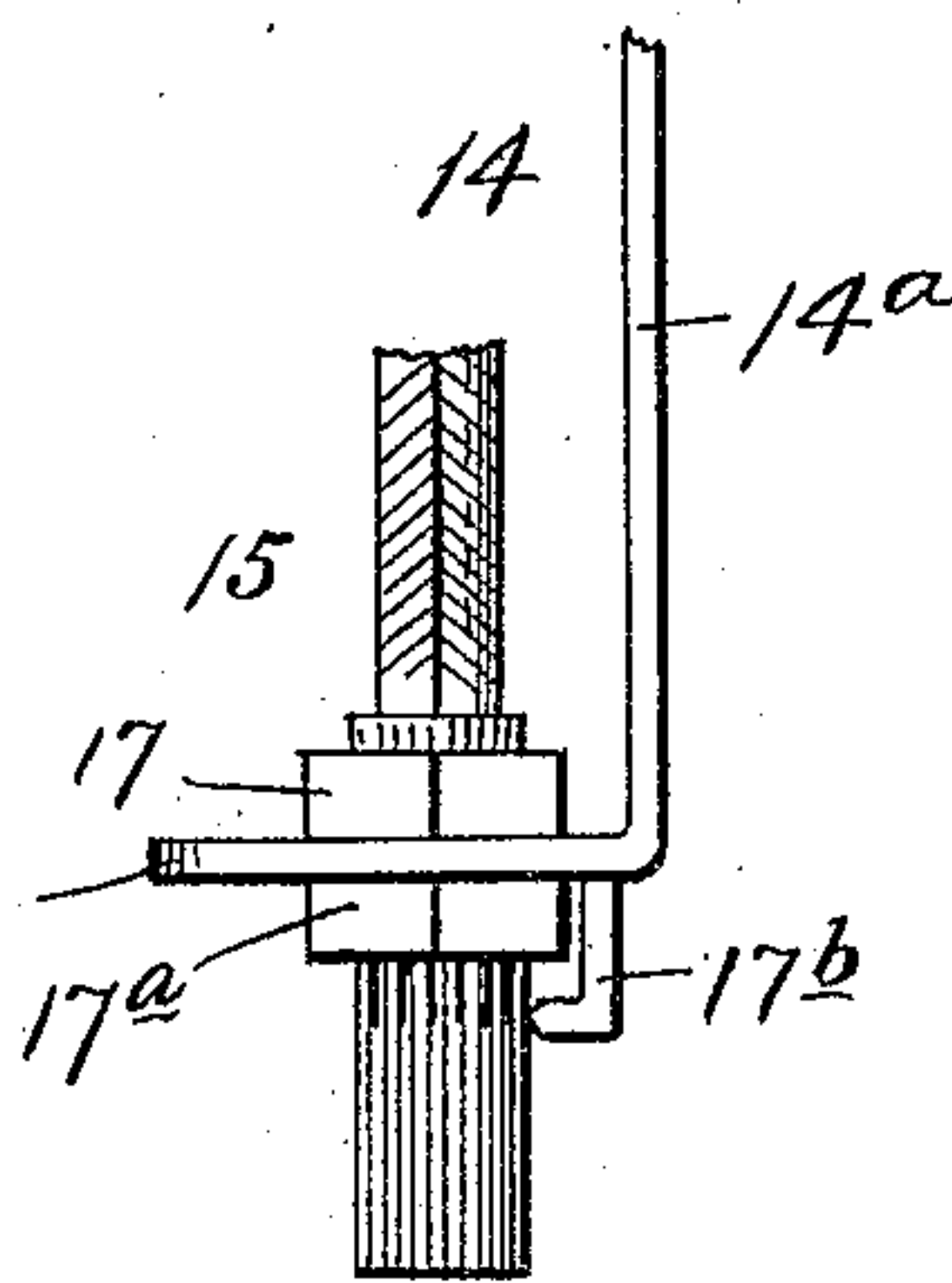


Fig. 7.

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UNITED STATES PATENT OFFICE.

HERBERT MILLER, OF HUDSON, NEW YORK.

INTERCHANGEABLE AND ADJUSTABLE HAND, BAND, AND JIG SAW FILING MACHINE.

No. 819,573.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed August 24, 1904. Serial No. 221,982.

To all whom it may concern:

Be it known that I, HERBERT MILLER, a citizen of the United States, residing at Hudson, in the county of Columbia and the State of New York, have invented a new and useful Interchangeable and Adjustable Hand, Band, and Jig Saw Filing Machine, of which the following is a specification.

My invention relates to improvements in saw filing or sharpening machines.

Said invention has for its object the ready and effective sharpening of the saw; the adjustment of the files for sharpening saws with finer or coarser teeth or a greater or less number of teeth to the inch; the varying of the angle of presentation of the files to the saw-teeth, as in changing the pitch or bevel of the latter, and the carrying out of these ends in a simple, expeditious, and effective manner.

The nature of said invention consists of the detailed structural features, substantially as hereinafter fully disclosed, and particularly pointed out by the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figures 1 and 2 are opposite side views thereof. Figs. 3 and 4 are opposite end views of the same. Fig. 5 is a longitudinal section looking in the direction of the saw-clamp-cam-actuating contrivance; and Fig. 6 is a horizontal section produced just above the saw-clamp-carrying member or carriage and the rack and cam for actuating said carriage; Figs. 7 and 8, detailed views more fully explained presently.

In the disclosure of my invention I provide a suitable frame 1 for supporting the various operative parts, which will now be described.

A carriage or slide 2 of suitable construction for carrying the saw clamp or jaw 3 is guided in its movement by a longitudinal groove 4 in one edge thereof, receiving one edge of a way or cleat 4^a, fixed to said frame, and to the opposite edge of said carriage or slide is removably secured a rack 5. The clamp 3, which in general outline, as disclosed particularly by Figs. 3, 4, and 6, is rectangular and preferably of metal, has connection with the upper surface of the slide or carriage 2. Said connection is preferably an arm 3^a, pivoted at one end to an upstanding stud 3^b, secured to the slide or carriage 2 and having its opposite end fixed to or integral with the clamp or jaw 3. Said arm is equipped with a set or holding screw 3^c, passing therethrough and engaging the screw-threaded walls of an

aperture produced in or through a plate 3^d, screwed to the carriage or slide 2, and which set-screw is effective for controlling the clamping action of the jaw or clamp 3 for holding the saw between the latter and the carriage or slide. Suitable means, as angular brackets 6, of any suitable construction, as seen in Fig. 6, are applied to the clamp 3 for temporarily or initially disposing the saw for clamping finally in position, as will be readily appreciated.

A spiral cam or disk 7, fixed to a shaft 8 so as to be readily exchanged for another for a purpose made apparent later, has a spiral offset tooth 7^a, effective to engage the notches of the rack 5 for suitably affecting or actuating the saw-clamp carriage 2. Said cam 7 for providing for its removal has a set-screw and collar connection 7^b with said shaft 8, and the latter is intergeared by suitable beveled pinions or gearings 8^a 8^b with a driving-shaft 9, arranged at a right angle to the aforesaid shaft. The shaft 9 is suitably equipped with a handled wheel or crank 9^a for its manual actuation or otherwise. Said wheel or crank also has adjustable link connection 10 with a wheel or crank 11^a, secured upon and for actuating a second shaft 11, bearing or having fixed thereto a crooked or cam member 12, also a wheel or crank 13, having connection with the file carriers or holders 14, as presently disclosed. Said file holders or carriers are of the general construction shown, each comprising a member 14^a, preferably a plate, with right-angled or lateral arms 14^b, through which pass parallel obliquely-arranged rods 14^c 14^{cc}, and upon which rods said holders have movement and are guided in their operation. The members or holders proper, 14^a, have link connections 13^a with the wheel or crank 13, suitably to provide for the alternate upward and downward movement of the holders, bringing into corresponding requisition or action the files 15 15^a, carried by or with which said holders or carriers may be equipped, as will be readily appreciated by artisans conversant therewith.

Provision is made for imparting the required angle or bevel to the teeth of the saw by suitably readjusting the inclination or angle or the required rods 14^{cc}, bearing one of the file-holders, and to effect this gages 16 16^a are adjustably applied to the upper and lower rails or bars of the frame 1, respectively. Said rods 14^{cc} pass through suitable openings in said rails or bars and of course through

openings in said gages 16 16^a, by the movement of which, permitted by suitably loosening their adjusting-screws 16^{ab} 16^{ac}, passing through slots therein, the rods 14^{cc} may be
 5 adjusted at the required inclination or angle for the purpose aforesaid. The angle of adjustment required in effecting the foregoing is suggested by the indicia and index 16^x, produced laterally upon the plates or gages
 10 16 16^a, as shown. Also it is noted that by means of the adjustable link connection between the hand or crank wheel 9^a and the wheel 11^a of the shaft 11 the position of each file-holder may be varied or adjusted accord-
 15 ing to the length of the file with which the latter may be equipped. The files are suitably held by nuts 17 17^a, applied thereto, above and below the lower and upper arms of the holders proper, 14^a, respectively, to permit
 20 the removal and exchange of these files for others of a different character, finer or coarser, according to the requirements or circumstances, as will be readily appreciated. Also for suitably turning the files, as suggested by
 25 indicia and index 17^b, in practice arranged in connection therewith, the required pitch may be given the saw-teeth. The saw-clamp-bearing slide or carriage 3 is adapted to have lateral movement to be shifted toward and
 30 away from the file-holders, this being effected by a horizontally or axially pivoted bar or lever 18 and the cam 12 engaging, preferably, the slotted or bifurcated upturned end portion of an adjunctive part of member 18^a or
 35 said bar or lever, the lower edge of the latter having a relatively loose tongue-and-groove-like connection 18^a with said carriage or slide. This movement of said carriage is of course to permit of the intermittent removal of the
 40 saw out of the plane of action of the files as said carriage is moved longitudinally in effecting the presentation of successive teeth of the saw to the action of the files.

The carriage 3 receives its longitudinal
 45 movement by the action of the cam 7 with its tooth 7^a upon the rack 5 of the saw-clamp carriage.

For filing or sharpening saws having a greater or less number of teeth to the inch the
 50 cam 7 7^a and rack 5 are exchanged for cams and racks adapted to fulfil the changed conditions—*i. e.*, for a saw having six teeth to the inch a rack having a corresponding arrangement of notches and a cam having a tooth
 55 with its spiral of the requisite pitch for engagement with said notches would be required to substitute a rack and a cam effect-

ive for sharpening a saw with five teeth or eight teeth to the inch, and so on.

From the foregoing the various advantages of my invention are fully apparent, it is believed, as are also the manipulation and use thereof, and it is therefore thought that the description and illustration are exhaustive in those particulars.

Latitude is allowed as to details herein, since they may be changed as circumstances suggest without departing from the spirit of my invention.

I claim—

1. A machine of the character described, comprising a supporting-frame having an upper and a lower bar each provided with slots, a holder or bracket for carrying a file, inclined guiding-rods for, and passing through said
 75 holder or bracket and through said slots, and retaining-plates for, and having rods passing through them, and means for effecting the adjustment of said plates for varying the angle of inclination of said rods.

2. A machine of the character described, comprising a saw-clamp carriage equipped along one edge with a rack, a rotary spiral cam engaging said rack for moving said carriage intermittently and parallel with the
 85 axis of the saw-blade which may be carried by the clamp, a suitably-fulcrumed lever engaging said carriage and a cam-arm engaging said lever and carried by an actuating-shaft for moving said carriage also intermittently
 90 but at right angles to the aforesaid movement, and a common means for operating the aforesaid parts.

3. A machine of the character described, comprising a saw-clamp carriage, a guide
 95 consisting of an upstanding lateral piece provided with a longitudinal slot receiving the corresponding edge of said carriage and of such depth as to permit the movement of the latter laterally or from side to side in right
 100 lines, said carriage being equipped with a feed-rack, a cam having its actuating-tooth member engaging said rack, means for imparting to said carriage its lateral or shifting movement, and a common means for actuat-
 105 ing said cam and said carriage-shifting means.

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

HERBERT MILLER.

Witnesses:

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 JAMES J. GANLEY.