

(No Model.)

2 Sheets—Sheet 1.

J. J. ALLEN.

APPARATUS FOR FEEDING PAPER.

No. 390,277.

Patented Oct. 2, 1888.

Fig. 1.

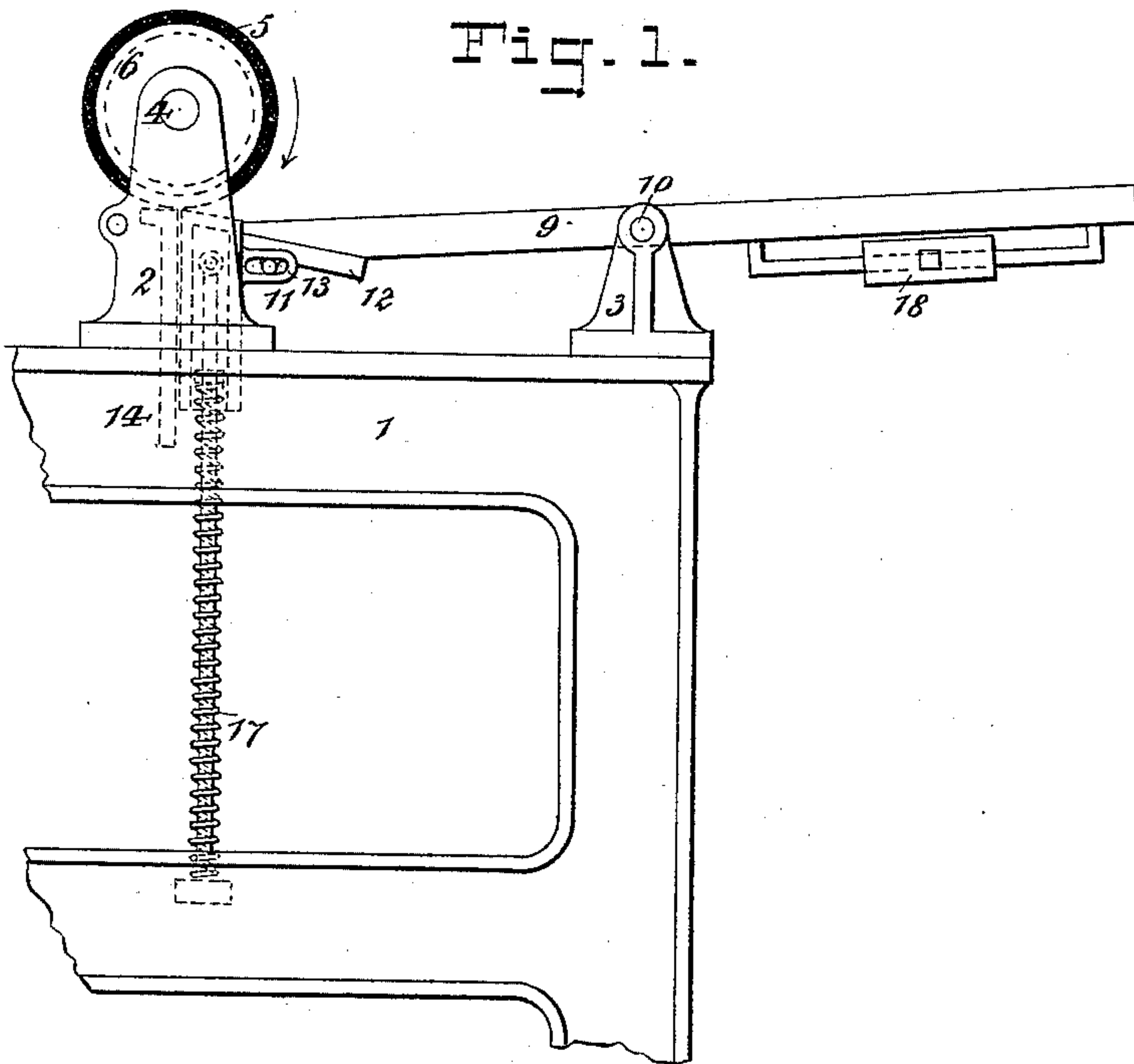
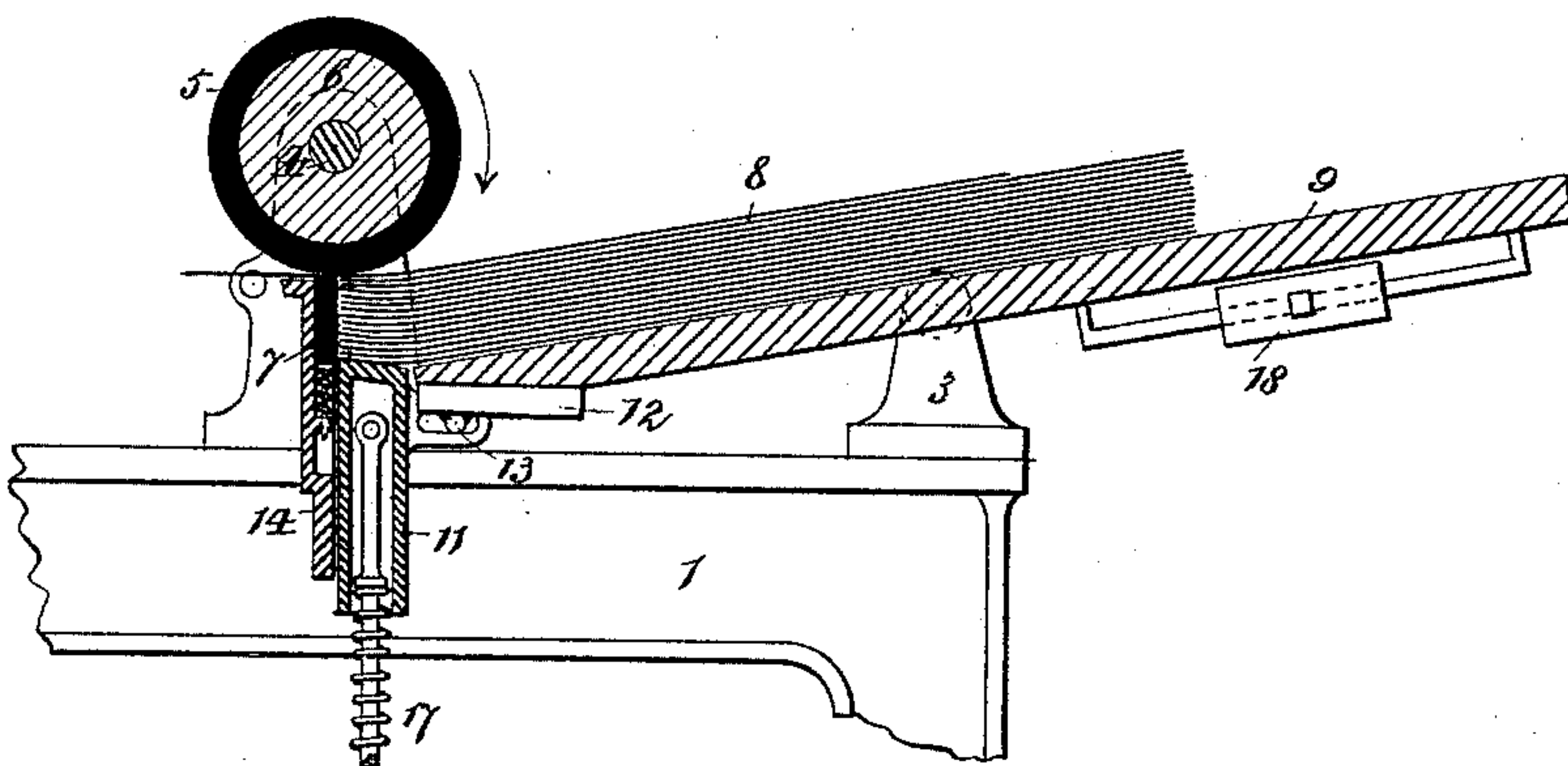


Fig. 2.



WITNESSES:

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Wm. H. Hannam

INVENTOR:

John James Allen,
By his Attorneys,

Arthur G. Briason & Co.

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Fig. 3.

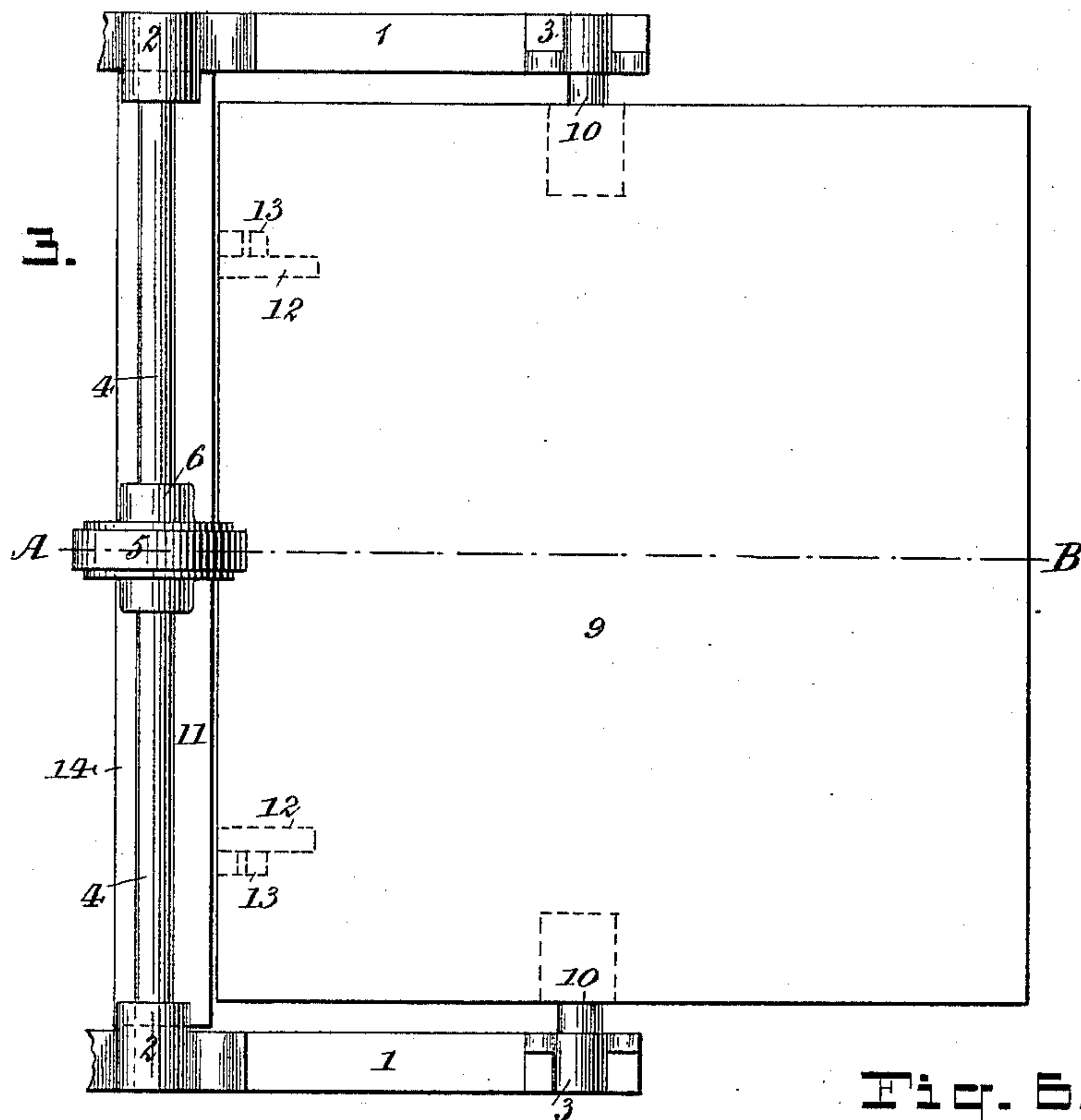


Fig. 4.

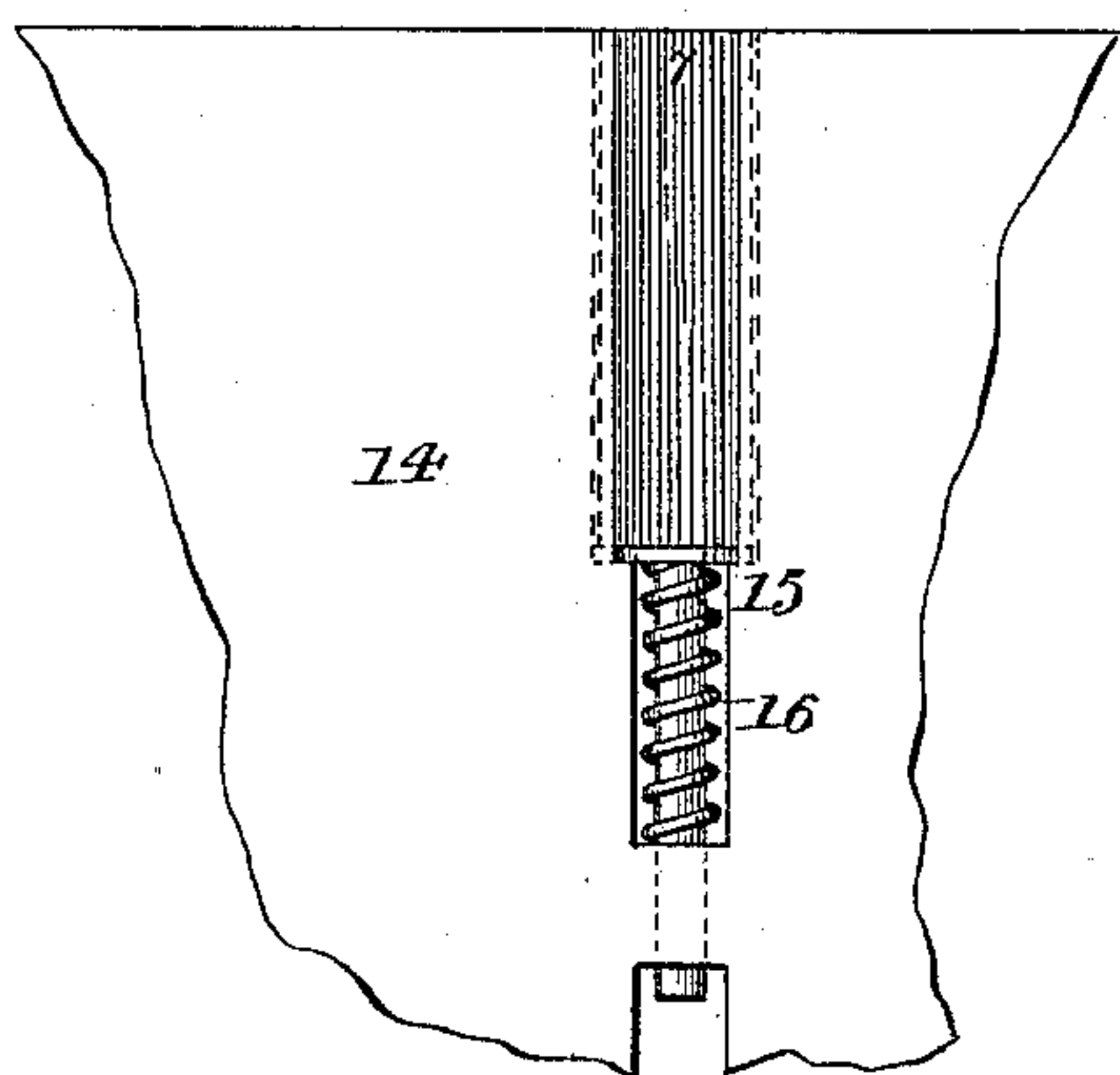
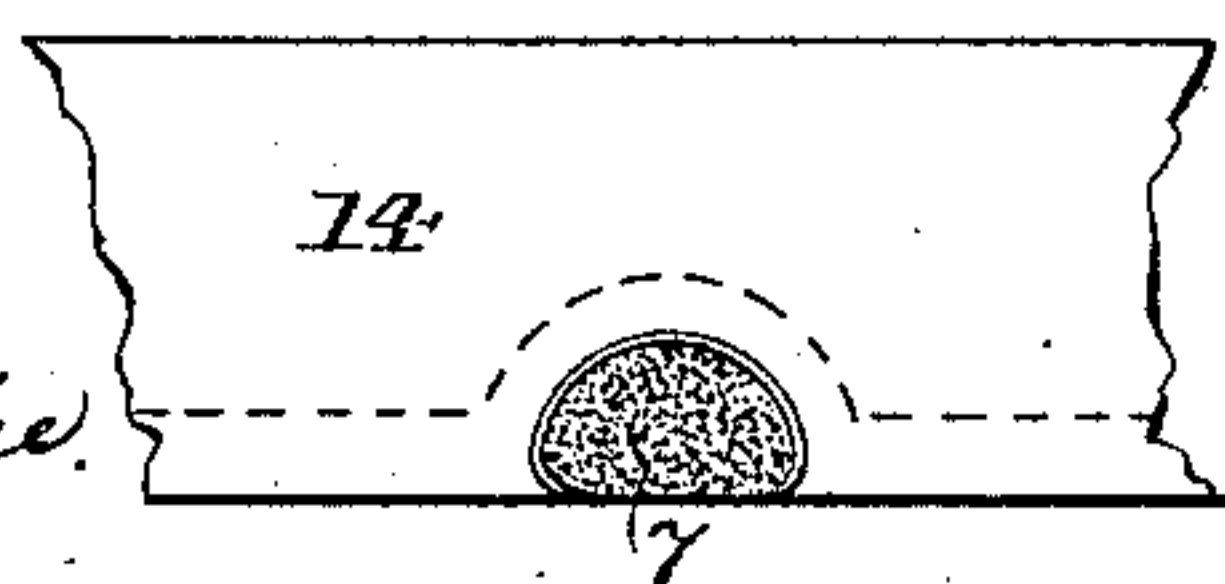


Fig. 5.



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Fig. 6.

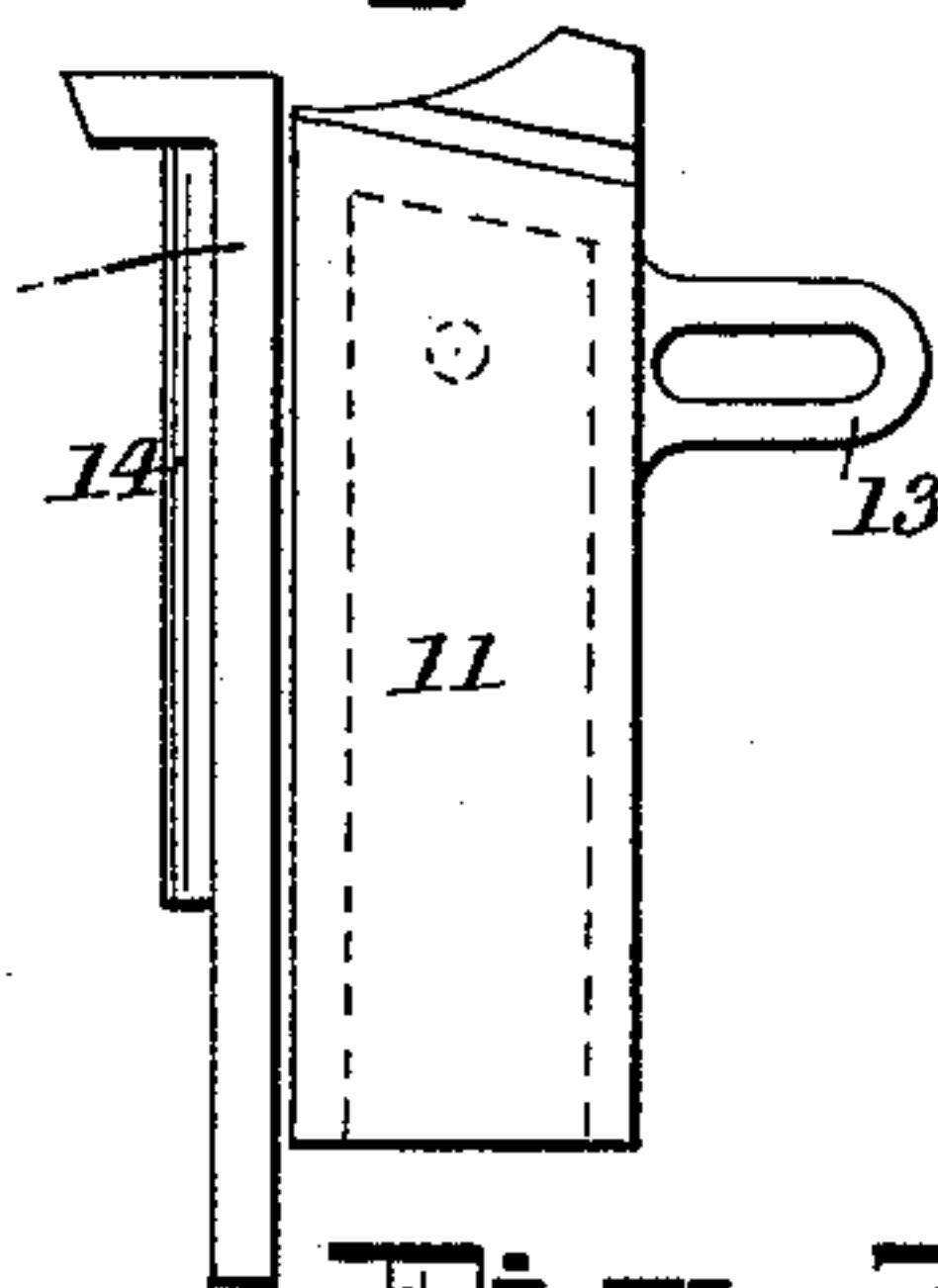
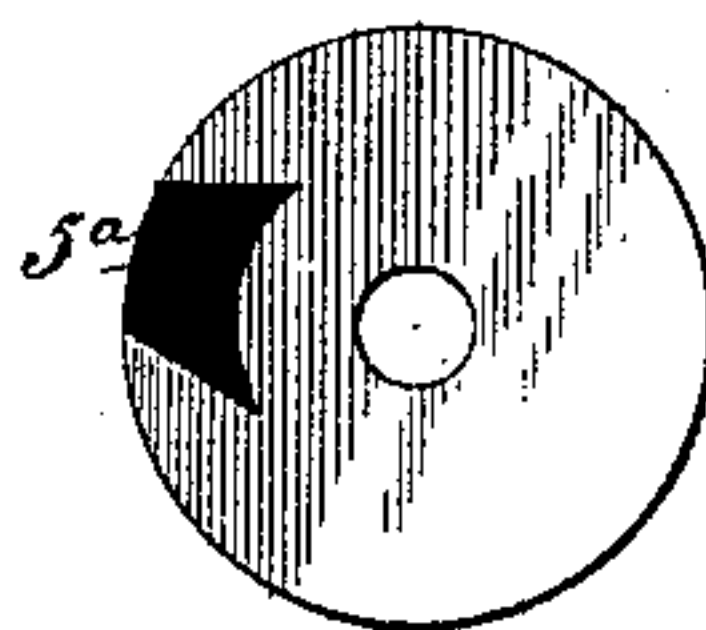


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN JAMES ALLEN, OF HALIFAX, COUNTY OF YORK, ENGLAND.

APPARATUS FOR FEEDING PAPER.

SPECIFICATION forming part of Letters Patent No. 390,277, dated October 2, 1888.

Application filed June 6, 1887. Serial No. 240,818. (No model.) Patented in England June 5, 1882, No. 2,638; in France December 14, 1882, No. 152,624; in Germany December 18, 1882, No. 22,941; in Belgium January 17, 1883, No. 60,190, and in Austria-Hungary August 2, 1883, No. 19,408 and No. 31,491.

To all whom it may concern:

Be it known that I, JOHN JAMES ALLEN, a subject of the Queen of Great Britain, residing in Halifax, in the county of York, England, have invented certain new and useful Improvements in Apparatus for Feeding Paper, of which the following is a specification.

This invention has been patented in Great Britain, No. 2,638, dated June 5, 1882; in France, No. 152,624, dated December 14, 1882; in Belgium, No. 60,190, dated January 17, 1883; in Germany, No. 22,941, dated December 18, 1882, and in Austria-Hungary, No. 19,408 and No. 31,491, dated August 2, 1883.

This invention relates to improved apparatus for feeding paper to printing-presses, paper-damping machines, paper-ruling machines, envelope-machines, and the like; and its object is to insure the regular and even supply of the paper sheet by sheet from a pile or stock of sheets.

In my improved feeding apparatus the sheets of paper are laid in a pile on a movable or creeping table or platform by means of which the forward edges of the sheets are pressed up into contact with a revolving feeder-wheel, which is faced with rubber and which engages the upper sheet and carries it forward. A frictional pad or retarder is arranged beneath the feeder-wheel, in order that if more than one sheet should move forward it will arrest the lower sheet or sheets and permit only the upper one to be fed. As the sheets are fed and the thickness of the pile diminishes, the tilting table or support moves upward at its forward edge, in order to keep the uppermost sheets continually pressed against the feeder-wheel. To this end the table is constructed with a vertically-moving plunger or sliding frame at its front end, which is pressed up by springs or weights and moves against the face of a vertical stop-plate or wall, which is fixed in the frame of the machine, carries the retarder-pad, and serves as a stop or gage for the forward edges of the piled sheets.

In the accompanying drawings, Figure 1 is a side elevation of my improved paper-feeding apparatus. Fig. 2 is a similar view in vertical longitudinal section cut in the plane of the

line A B in Fig. 3. Fig. 3 is a plan of the machine. Fig. 4 is a fragmentary front elevation of the fixed stop plate and the retarder-pad. Fig. 5 is a fragmentary plan thereof. Fig. 6 is a side elevation of the vertical stop-plate and the plunger detached. Figs. 4, 5, and 6 are on a larger scale than Figs. 1, 2, and 3. Fig. 7 is a side elevation of a modified construction of feeder-wheel.

Referring to the drawings, the number 1 designates the frame-work of the machine, on which are fixed brackets, numbered 2 and 3. The opposite brackets, 2 2, form bearings for a rotary shaft, 4, which is driven by power, applied in any suitable manner, in the direction of the arrow in Figs. 1 and 2. On the center of this shaft 4 is fixed the feeder-wheel 5, which consists of a rim or tire of india-rubber or other suitable frictional material confined between flanges on a boss or hub, 6.

Beneath the feeder-wheel 5 is fixed a vertical stop plate or wall, 14, which is preferably arranged in the same plane as the axis of the shaft 4. The pile of paper, 8, is laid on a tilting table or platform, 9, with its front edge or side in contact with this plate 14. The tilting table 9 is mounted on pivots 10, which are borne by the brackets 3 3. At the front of the table is arranged a vertically-moving plunger, 11, which slides against the rear face of the plate 14, and is thrust up by springs 17. This plunger is connected to the front of the table 9 by means of pins carried by cleats 12 on the table and engaging horizontal slots in projections 13, formed on the plunger. Thus the plunger and table are forced to move together up or down, the former moving vertically in a straight line and the latter moving in the arc of a circle. The table 9 is counterbalanced by an adjustable weight, 18, which may be moved farther out or in at pleasure.

It will be observed that the forward portion of the pile of sheets rests on the plunger 11, while the remainder thereof is carried by the table 9. The plunger thus forms a forward continuation of the table.

A frictional pad or retarder 7 is mounted directly beneath the feeder-wheel 5 and in front of the pile of sheets. This retarder is prefer-

ably constructed of a pad or block of soft rubber or other frictional material, which is mounted in a vertical recess in the rear side of the plate 14, as best shown in Figs. 4 and 5.

5 It is pressed up by means of a headed stud or sliding rod, 15, which is acted on by a spring, 16.

The operation is as follows: A pile of sheets of paper is placed on the table 9, with its front edge against the plate 14, and the spring 17 or counter-weight 18, or both, are adjusted in such manner as to press the forward edge of the pile of sheets upward against the feeder-wheel 5. The shaft 4 being then put in motion, the frictional surface of the feeder-wheel engages the uppermost sheet and drags it forward in the manner indicated in Fig. 2. This sheet, in moving forward, passes over the frictional pad 7, which tends to retard it. In case two sheets should move together the pad 7 will engage the lower sheet and hold it back, thereby separating it from the upper sheet, and the latter will be propelled forward by the action of the feeder-wheel 5. As soon as one sheet has been passed beyond the feeder-wheel, the latter engages the next sheet beneath and feeds that in its turn. As the successive sheets are fed off and the pile of sheets decreases in thickness, the plunger 11 moves upwardly, and the table 9 is tilted until upon the feeding of the last sheet the plunger comes against the feeder-wheel.

Fig. 7 illustrates a modification of the feeder-wheel, wherein the rubber or frictional surface is confined to a small fraction of the circumference of the wheel, as clearly indicated at 5^a. This construction is useful where it is desired to feed each sheet only a short distance, in order that it may then be engaged by the grippers or other part of the printing-press or other machine to which the paper is being fed. With this construction one sheet is fed to each revolution of the shaft 4.

I claim as my invention, in an apparatus for feeding successive sheets of paper from a pile thereof, the following defined novel features or combinations, substantially as hereinbefore specified—namely:

1. The combination of a rotating feeder-

wheel, a vertically-movable plunger beneath said wheel, a tilting table connected to said plunger at its front side in order to form a continuation thereof, and means for pressing up said plunger and the forward side of said table in order to bring a pile of sheets thereon into contact with said wheel. 55

2. The combination of a rotating feeder-wheel, a fixed plate or stop beneath the same, a vertically-moving plunger in rear of said stop, a tilting table connected to said plunger at its front side in order to form a continuation thereof, and means for pressing up said plunger and the forward side of said table in order to bring a pile of sheets thereon in contact with said wheel. 65

3. The combination of a rotating feeder-wheel, a fixed plate or stop beneath the same, a vertically-moving plunger in rear of said stop, a tilting table in rear of said plunger, and a slot-and-pin connection between the front side of said table and said plunger, whereby the two move vertically together and the one forms a continuation of the other, and means for pressing up said plunger and the forward side of said table. 75

4. The combination of a rotating feeder-wheel, a table for supporting a pile of paper beneath said wheel, a fixed plate or stop in front of said table, a frictional pad or retarder arranged against said stop and between it and the front of the pile of paper, and constructed to move vertically, and a tensile device for pressing said pad upwardly against said wheel. 80

5. The combination of a rotating feeder-wheel, a table for supporting a pile of paper beneath said wheel, a fixed plate or stop in front of said table, having a vertical recess therein, a frictional pad or retarder carried in said recess, and a spring for pressing up said pad against said wheel. 90

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN JAMES ALLEN.

Witnesses:

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J. BRIERLEY HOWARD.