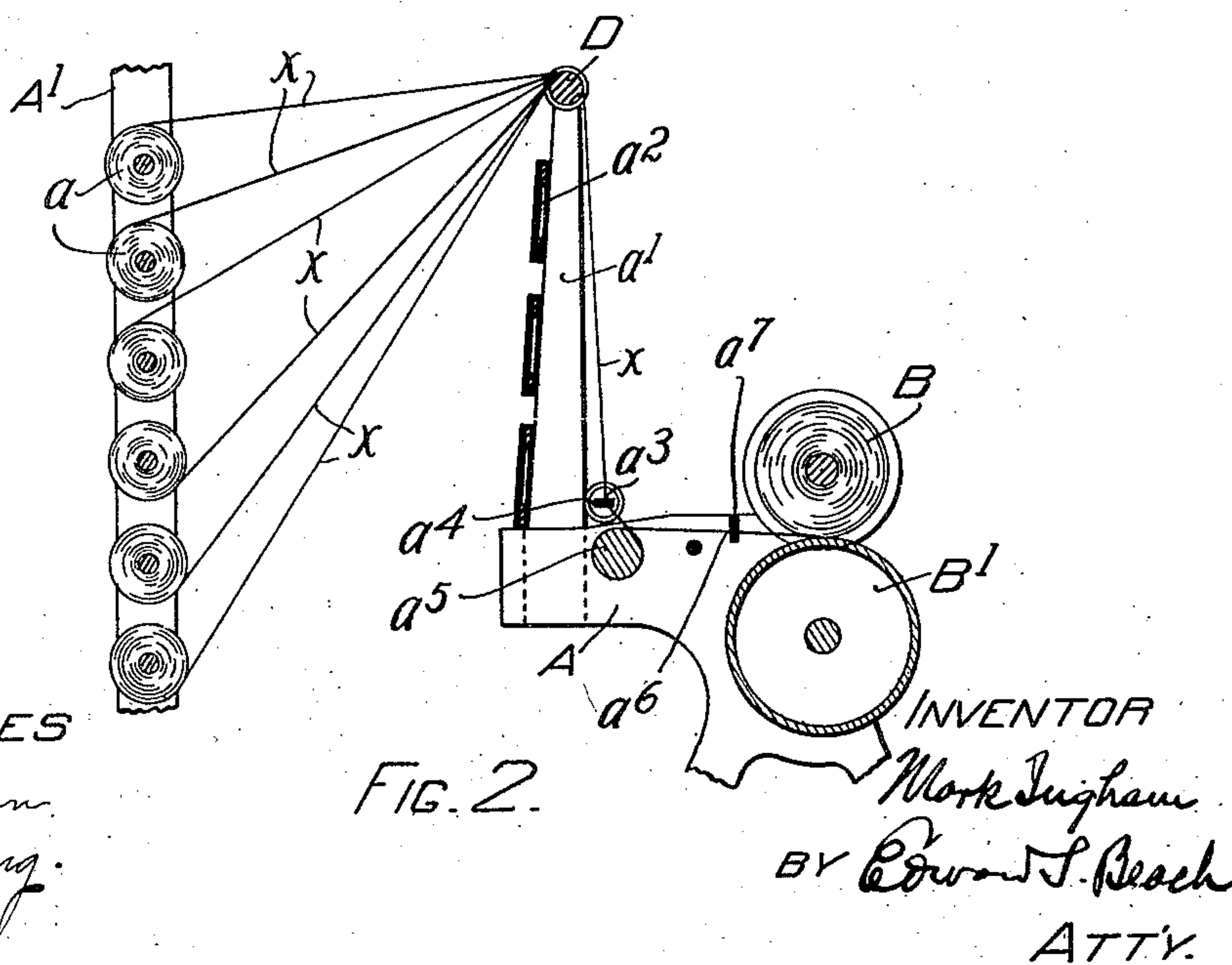
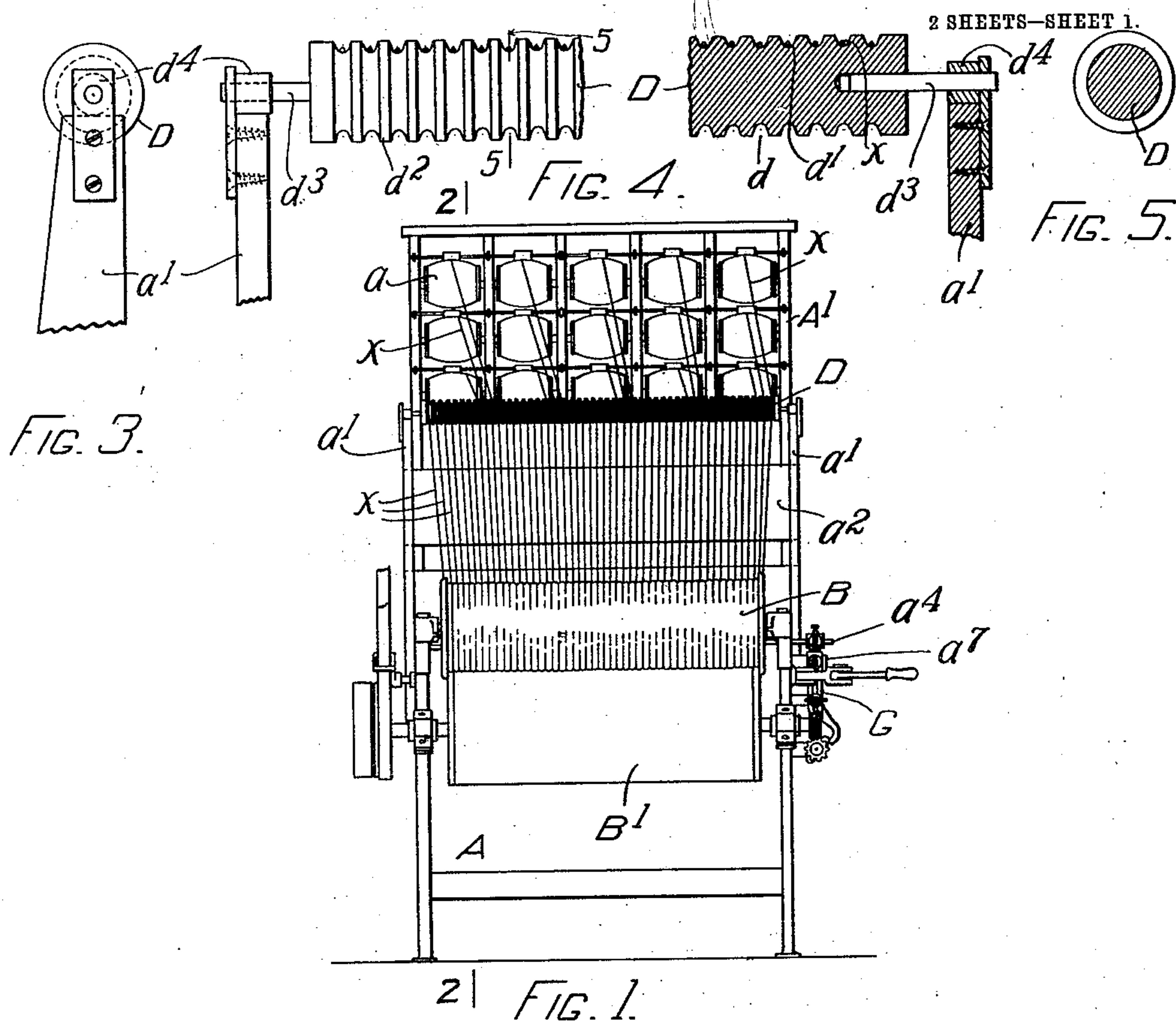


M. INGHAM.
JACK OR DRESSER SPOOLING MACHINE.

APPLICATION FILED JULY 5, 1904.



WITNESSES
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J. M. Laing.

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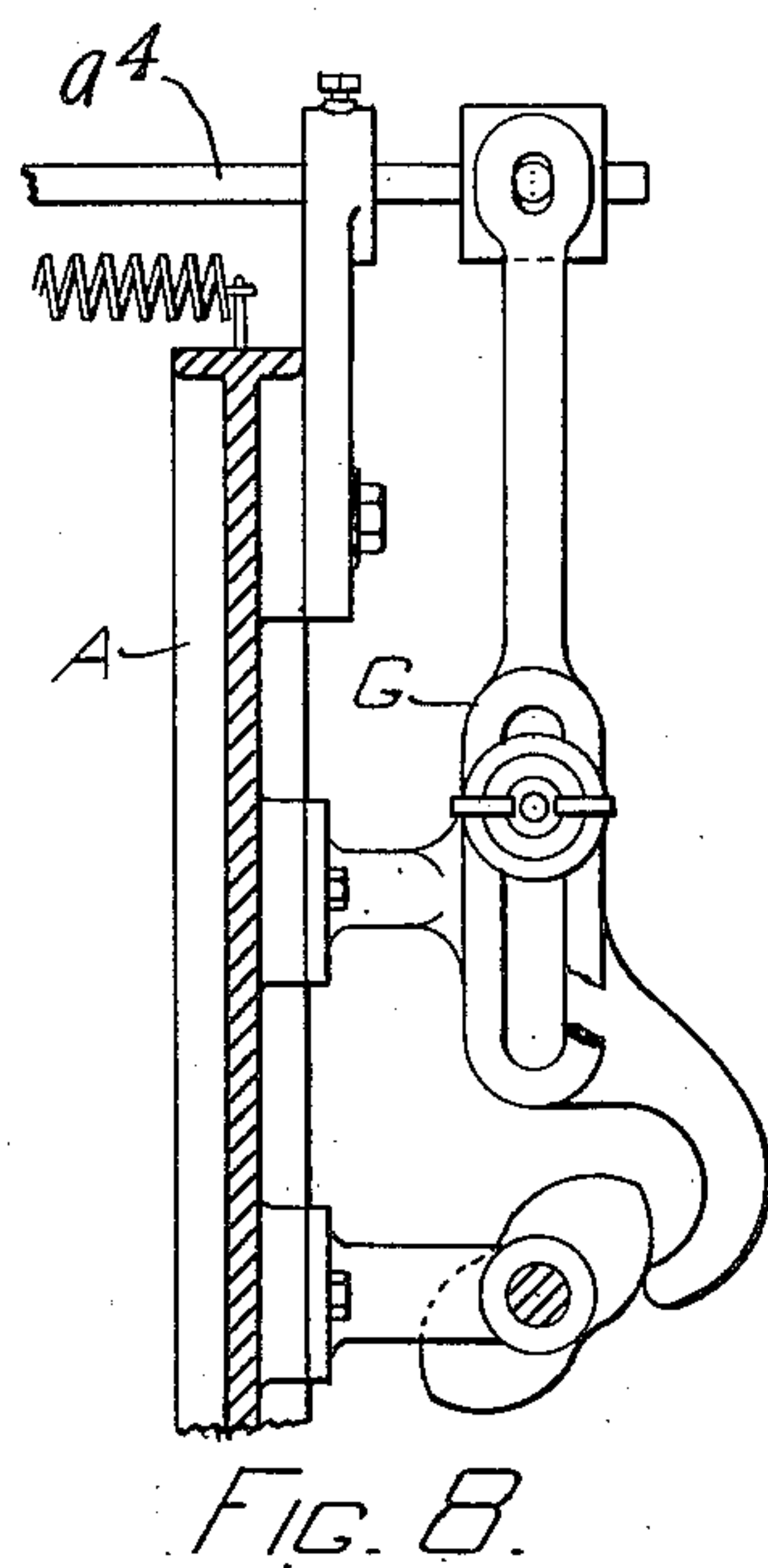
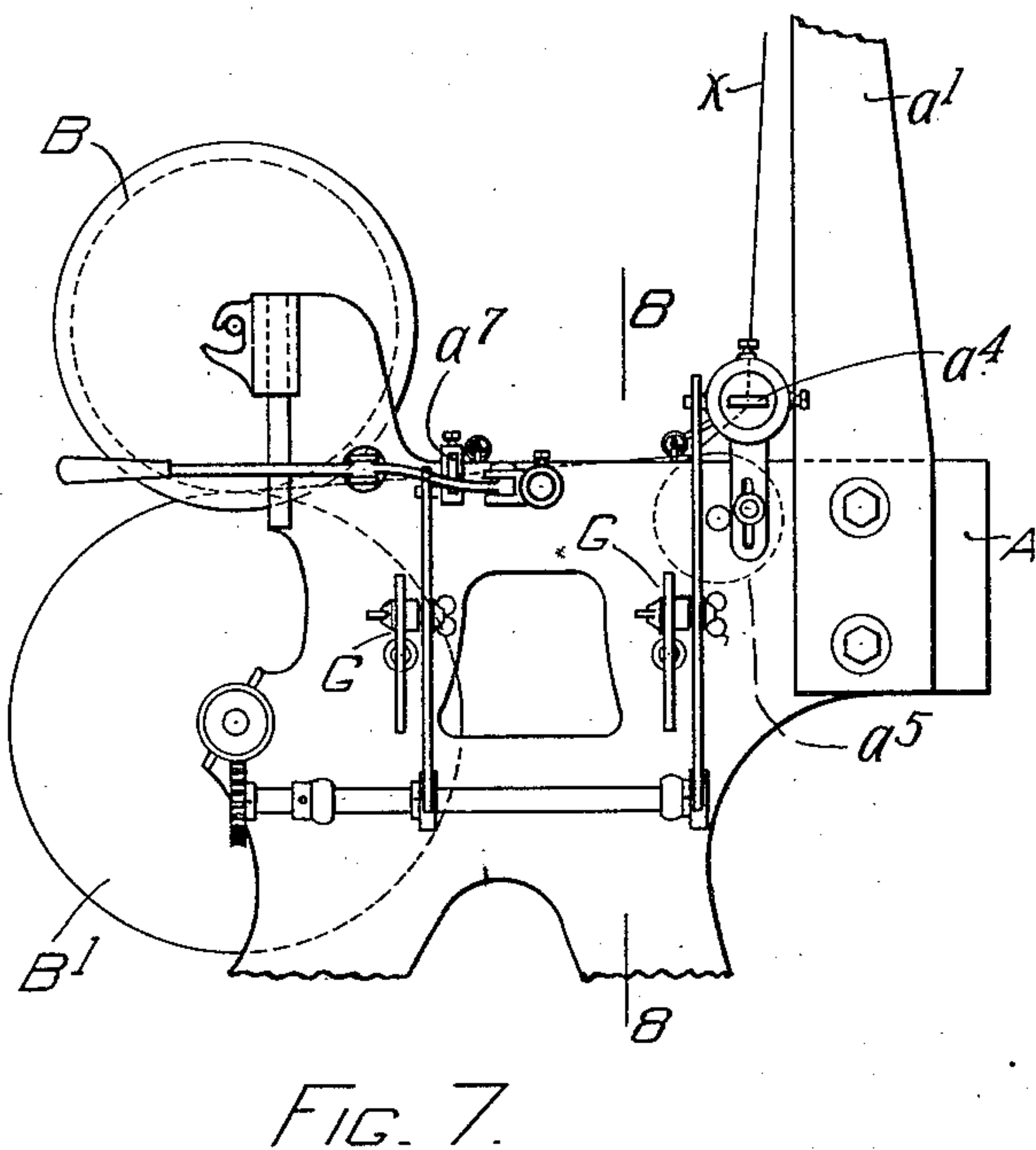
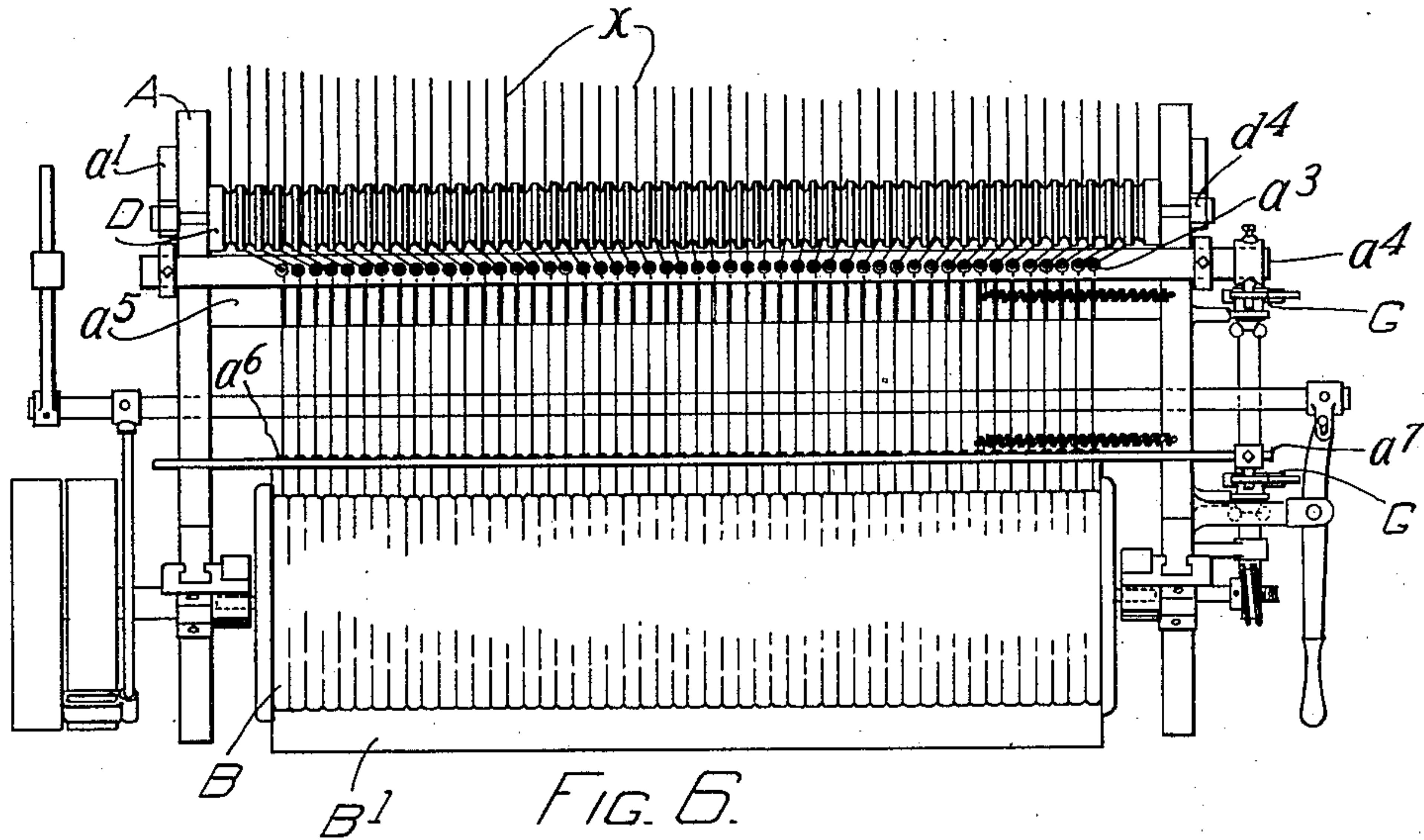
No. 822,278.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

MARK INGHAM, OF NORTH CHELMSFORD, MASSACHUSETTS.

JACK OR DRESSER SPOOLING MACHINE.

No. 822,278.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed July 5, 1904. Serial No. 215,428.

To all whom it may concern:

Be it known that I, MARK INGHAM, a subject of the King of Great Britain, residing at North Chelmsford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Jack or Dresser Spooling Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a front elevation of a jack or dresser spooling machine containing my invention. Fig. 2 is a vertical section thereof at line 2 2 of Fig. 1. Fig. 3 is an end view of the upper part of one of the pair of side frames which support my new thread-guide roll. Fig. 4 is a view partly in side elevation and partly in lengthwise section, showing my new thread-guide roll. Fig. 5 is a cross-section of said roll at line 5 5 of Fig. 4. Fig. 6 is a top plan view of a part of the jack-spooling machine shown in Fig. 1. Fig. 7 is a partial end view of the same. Fig. 8 is a view partly in section at line 8 8 of Fig. 7 and partly in elevation and shows mechanism for reciprocating the traverse-bars.

The object of my invention is to obtain cross-sectional evenness in dresser-spooled thread or yarn; and my invention consists in the hereinafter-described novel combination of parts necessary for obtaining this object.

In the drawings illustrating the principle of my invention and the best mode known to me of applying the same, A is the main frame of a so-called "jack" or "dresser" spooling machine, and A' is the creel-frame, in which thread-delivering bobbins *a* are rotatably mounted to deliver each its thread or yarn *x* to the rotary jack or dresser spool B, journaled in frame A and parallel with the subjacent contacting drum B'. In its course from a bobbin to the dresser-spool on which it is wound each thread first passes over or through some kind of supporting contrivance extending crosswise of the machine at the upper ends of the side frames *a'*. Each thread then passes downwardly in front of the color-cards *a*² (which afford a suitable background for the threads, so that the operator in front of the machine may readily see and detect defects in the descending threads and know when to stop the machine to correct defects) and thence through eyes *a*³ in the transverse traverse-bar *a*⁴, the endwise movement of which prevents the threads from wearing grooves in the delivery-roll *a*⁵ and so main-

tains the delivery-roll surface in a smooth condition. The threads severally make one turn around the delivery-roll and are then severally carried through eyes *a*⁶ in the transverse traverse-bar *a*⁷, adjacent to the spool and drum, the endwise movement of the bar *a*⁷ serving to position each thread with respect of the spool in suchwise that each thread is wound superimposedly on the spool without becoming interwound with its neighboring thread. Heretofore said thread-supporting contrivance has consisted of a bar having depending from its under side a row of metal guide-eyes. Serious objections exist to the use of the bar and eyes, and they have existed for many years, both abroad and in the United States.

First, when dresser-roll B is rotating and drawing off the separate threads from the several bobbins in the creel the draft of the many threads on the eyes springs the bar downwardly between its ends, so that the bar takes the concavo-convex shape shown by dotted lines in Fig. 9, causing some of the threads to slack more than others and preventing uniform tension between the thread-support and the delivery-roll *a*⁵. Whenever the machine is stopped, (as it must be at frequent intervals,) the bar springs upwardly. When the machine is started, the bar is again arched. The consequences are that at each bending of the bar unequal tension is brought on the threads which pass downwardly to the eyes *a*³ of the traverse-bar *a*⁴ and to the delivery-roll *a*⁵, resulting in unequal cross-sectional condition of the yarns or threads wound upon the dresser-roll. The necessarily frequent stoppings and startings of the machine increase this defect of unequal cross-sectional condition (or unevenness) of the yarns or threads wound upon the dresser-rolls.

Secondly, the lateral movements of the several yarns or threads imparted by the traverse-bar *a*⁴, combined with their lengthwise movement, causes the threads to cut narrow slits or thread-passages in the supporting portions of the metal eyes, the walls of these slits roughening the individual threads (more in some places than in others, according to the condition of the constituent thread-forming parts) and producing weakened or other imperfect spots or roughening up of fibers and so requiring a stoppage of the machine and manual removal from individual threads of semidetached fibers thereof, the

imperfections being visually detected as the threads descend in front of the color-cards or other suitable background.

Third. In consequence of the tension which
5 has hitherto existed when the threads have been drawn through the metal eyes the spools have been generally unduly "hard"—that is, wound too compactly. A "softer spool" has been sought, but has not been obtainable.
10 To overcome the foregoing objections and obtain a softer spool, I have substituted for the old bar and stationary eyes, Fig. 9, a rigid freely-rotatable transverse thread-supporting roller D, having for each thread a separate
15 circumferential grooved d , the bottom of which is concave and much wider than the diameter of the thread, as shown at d' . By this construction each thread is given a freely-moving support at the point from which it
20 descends to the traverse-bar a^4 , and each thread is moved transversely across the concave bottom of the groove by the movements of the traverse-bar a^4 , thus minimizing frictional restraint to the passage of the thread
25 and also causing the lateral and lengthwise movements of each thread to wear the concave bottoms of the grooves smooth and keep them so, whereby the moving yarns are not abraded by contact with roughened or slit-like parts of the support. The peripheral
30 ribs d^2 , which separate the grooves, keep the threads apart one from the other, and the rigidity of the roller between its ends prevents variation in tension heretofore due to
35 said arching of the old eye-board. By my invention softer spools are obtained, the individual threads are kept in better condition,

uniformity of all the threads on a spool is increased, and a greater number of spools can be filled in a given time in consequence of a
40 reduction in necessary stoppages of the machine. Roller D may be made of any suitable material and is shown with a trunnion d^3 in each end, the trunnions being loose in bearings d^4 at the upper ends of the side frames a' . Roller
45 D is rotated by the frictional engagement of the threads x therewith. The construction and operation of the rest of the machine will be readily understood by all skilled in the art without further description. The traverse-
50 bars are reciprocated endwise by old and well-known mechanism, (marked G.)

What I claim is—

In a jack or dresser spooling machine, the combination of a freely-rotatable, grooved
55 roller which supports the threads between the bobbins and the thread-delivery roll; a transverse, eyed traverse-bar; a delivery-roll, said traverse-bar being between said grooved roller and the delivery-roll; a spool and drum;
60 the thread-supporting roller being rigid and having alternating circumferential peripheral ribs and grooves, a groove for a bobbin and for a corresponding eye of the traverse-bar, and the bottoms of the grooves being concave
65 and wider than the diameter of the thread passing over it.

In testimony whereof I affix my signature in presence of two witnesses.

MARK INGHAM.

Witnesses:

JOHN J. CURRY,
GEORGE G. STETSON.