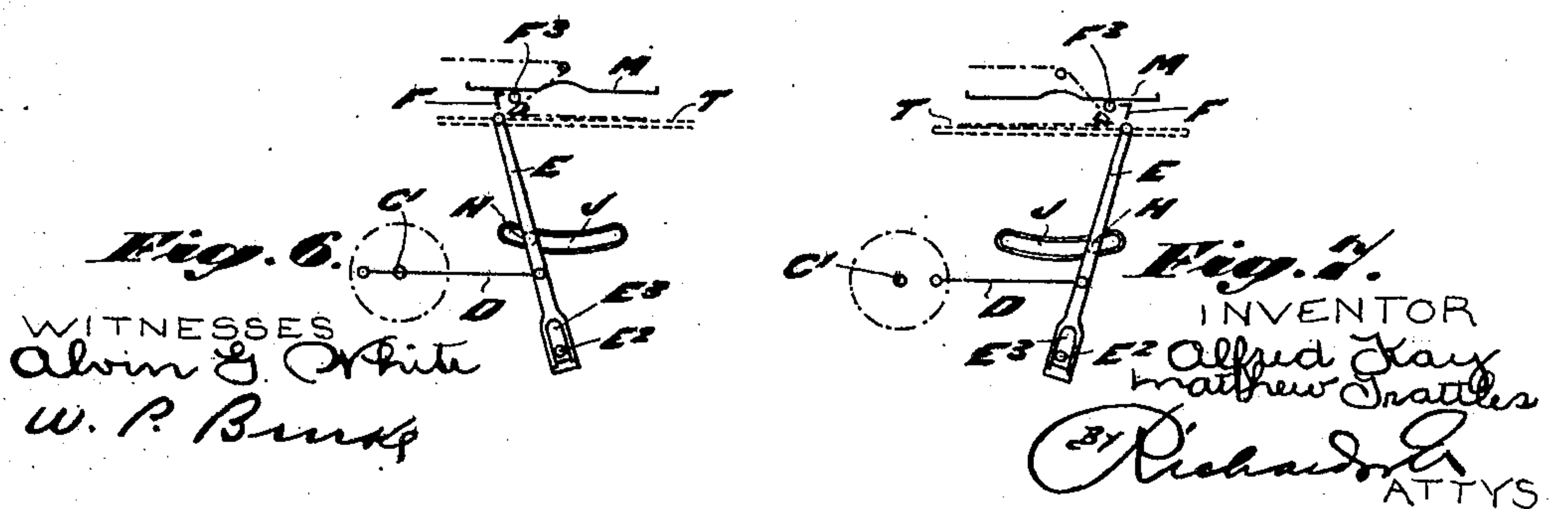
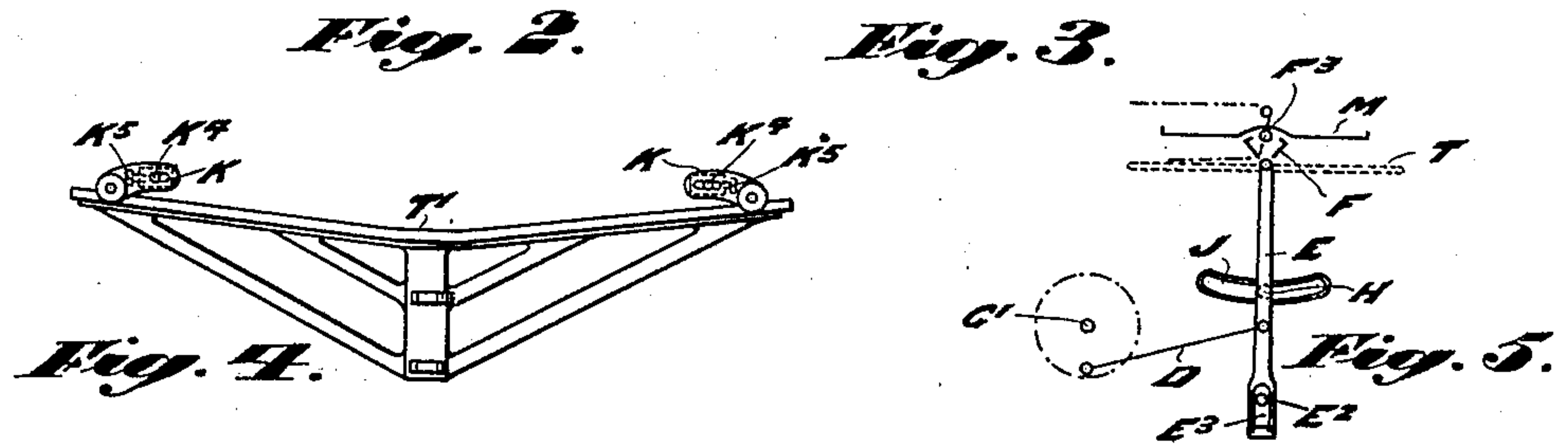
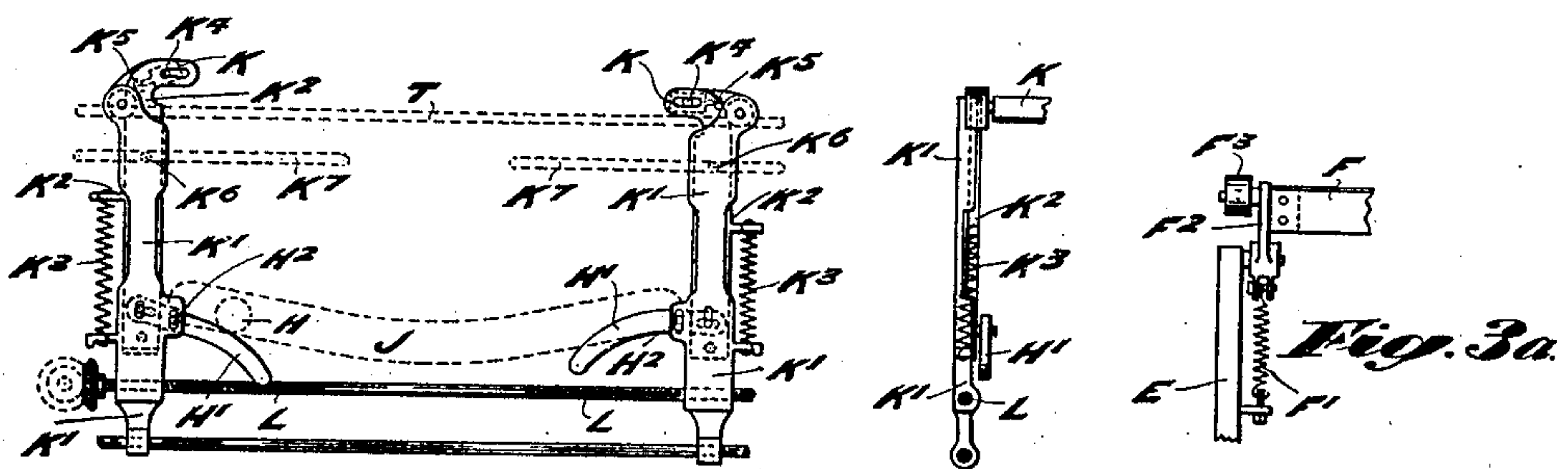
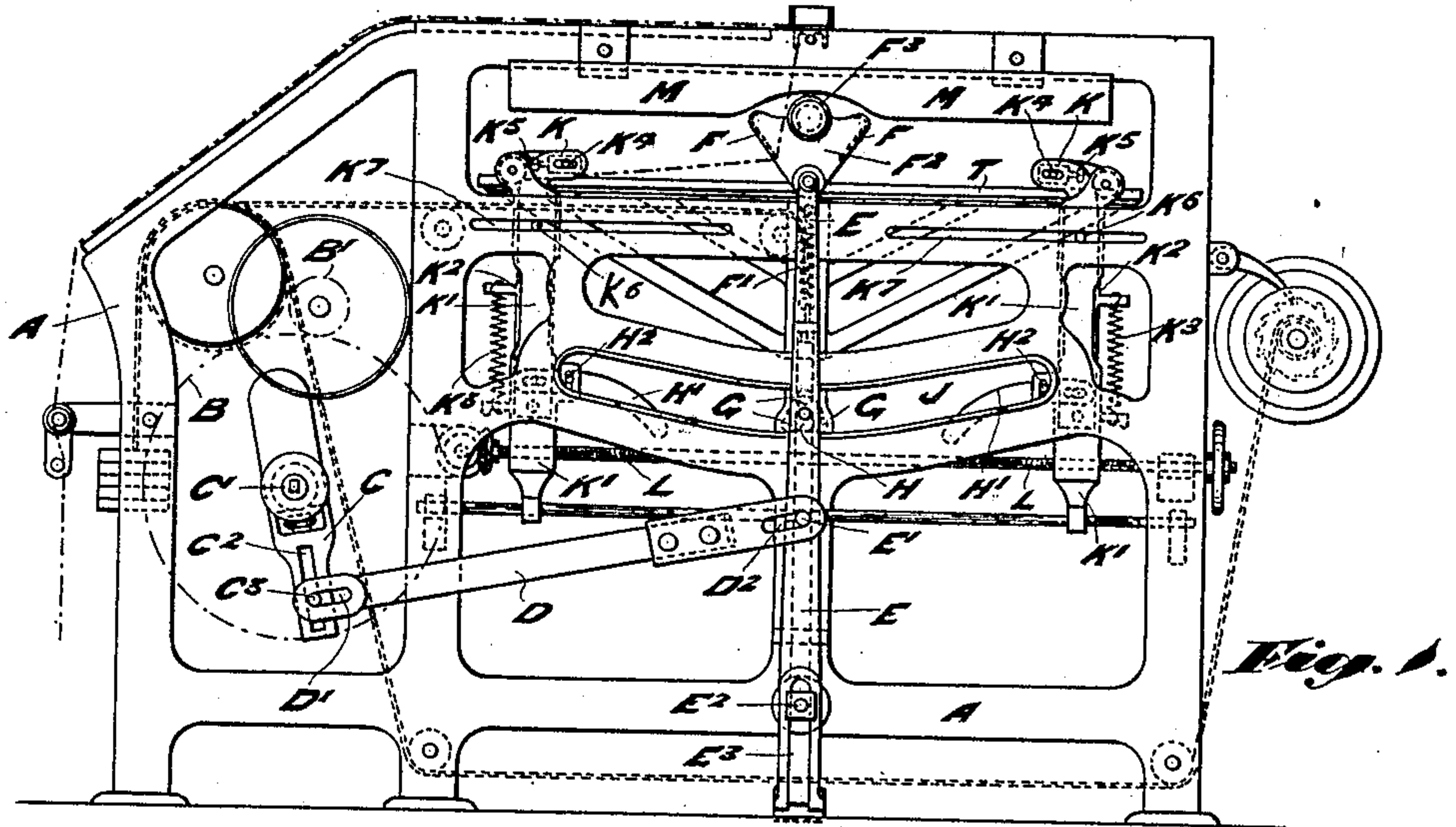


A. KAY & M. TRATTLES.
 APPARATUS FOR FOLDING CLOTH.
 APPLICATION FILED NOV. 27, 1908.

919,591.

Patented Apr. 27, 1909.



UNITED STATES PATENT OFFICE.

ALFRED KAY, OF ROCHDALE, AND MATTHEW TRATTLES, OF BRADFORD, ENGLAND.

APPARATUS FOR FOLDING CLOTH.

No. 919,591.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed November 27, 1906. Serial No. 345,414.

To all whom it may concern:

Be it known that we, ALFRED KAY, of 1 Grandidge street, Rochdale, in the county of Lancaster, England, and MATTHEW TRATTLES, of 3 Alban street, New Hey Road, Bradford, in the county of York, England, subjects of the King of Great Britain and Ireland, have invented certain new and useful Improvements in and Relating to Apparatus for Folding Cloth, of which the following is a specification.

This invention relates to improvements in apparatus for folding cloth in folds, and has for its object the arrangement and construction of an apparatus whereby a simple and substantially parallel motion is given to the "folding blades," and the width of the folds may be regulated, as desired, the "folding blades" being so mounted on their operating arm or arms that they may be moved out of their horizontal positions in either direction by means of adjustable guides and tappets, for the purpose of placing the cloth under adjustable clamps which are automatically operated by the operating arm carrying the "folding blades."

In describing our invention in detail, reference is made to the accompanying sheets of drawings, similar letters indicating similar parts, in which,

Figure 1 represents an elevation of a cloth folding machine showing our improvements. Fig. 2 represents a part elevation of the rising and falling clamps. Fig. 3 represents a side elevation of one of the clamps. Fig. 3^a represents a detail of the "folding blades" and tappet hereinafter referred to. Fig. 4 represents an elevation of a concave table showing a modified form of clamp. Figs. 5, 6, and 7, represent diagrams showing the motion.

In carrying out our invention, the mechanism is mounted in a suitable frame A. Power is supplied through, by preference, toothed wheels B¹ and B. On the shaft C¹ of the wheel B is mounted a crank or the like C, such crank being provided in one end with a slot or like C², in which works one end of a pin C³, the other end working in a slot D¹ in one end of an arm or connecting rod D, such arm being provided with a slotted end D² in which works a pin or the like E¹ attached to the operating arm E on which are mounted the "folding blades" F. The arm

E is pivoted to the frame A, toward the base of same, by means of a pivot E² working in a pivot E³.

Above the stud E¹ and attached to the blade operating arm E is mounted a roller or rollers G, and to the bearing carrying such roller or rollers is mounted a roller or tappet H. The rollers G pass into a curved slot J in the frame A, and the tappet H passes a little beyond or through such slot, the tappet H being for the purpose of operating the rising and falling clamps K which are placed a suitable distance apart, depending on the width of the folds required. The curved slot J acts as a guide for the "folding blade" operating arm.

The construction of the clamps K is substantially as follows:—The clamps comprise an inner and outer portion K¹ and K², the outer portion K¹ being mounted at its base on a threaded shaft L, in such a manner that it may be moved toward or from the center of the machine. A stud K⁶ attached to the portion K¹ passes into a guide or slot K⁷ formed in the machine frame, as shown. To the lower end of the inner portion K² which carries the clamp proper, and which is of the ordinary construction, when a flat table such as T (Fig. 1) is used, is mounted or pivoted one end of a lever H¹, a small amount of play being, by preference, allowed to the said pivoted end. A further pivot such as H¹ passes from the lever H¹ through a slot in the outer portion K¹. The free end of the lever H¹ projects toward the center of the machine in a slightly downward direction, as shown in Figs. 1 and 2, so that when the tappet H on the blade operating arm E travels in the slot J, such tappet will press down the lever H¹ and raise the clamp K. A spring K³ connects the two portions K¹ and K², in order that the clamp may return automatically to the down position and be held there, that is to say, on to the cloth. It will be understood that the portion K² slides in the portion K¹, the latter portion, as it were, being a fixture. Should, however, a concave or curved table such as T¹, Fig. 4 be used, clamps of the ordinary construction would not grip the cloth sufficiently, therefore the shaft K⁴ on which the clamp itself is carried is provided in its bearings with a set screw such as K⁵ which may be loosened, and the clamp K inclined, the set

screw being then tightened; as shown in Fig. 4. This construction is also shown in Figs. 1 and 2, though same is not essential when a straight table T is used.

5 On the outer end of the blade operating arm E are pivoted the ordinary "folding blades" F, such blades being held in the vertical position by means of a suitable spring or springs F¹. Mounted on the upper face of
10 the bracket F² which carries the "folding blades" and in the center thereof, is a tappet or the like F³ and mounted in the frame of the machine above such blades are adjustable guides or the like M, so arranged that as the
15 "folding blade" operating arm is moved to one side or the other, the tappet F³ will come in contact with the guides M, and cause the said blades to be tilted, and place the cloth under one or other of the clamps
20 K, which will now be raised. On the return stroke of the blade operating arm, the blades return to their upright position at the center of the stroke, owing to the action of the spring or springs before mentioned. The
25 diagrams, Figs. 5-7, show the central and extreme positions of the knives, also the course of the cloth. As the operating arm and blades thereon travel backward and forward with a substantially parallel motion, the said arm E may move slightly up and
30 down owing to its pivot working in the slot before mentioned.

The table T is operated substantially in the ordinary manner, with the exception
35 that the construction of the machine will allow of a greater rise and fall of such table, than has been usually permissible, and the method shown, namely, chains and weights will be understood by those skilled in the art
40 without further description.

Instead of using a curved slot as above described, the slot may be straight and the operating arm shorter than described, and moved in a straight line, substantially in the
45 manner of an engine slide.

By constructing a cloth folding machine as before described, and substantially as shown in the drawings, the machine may be constructed lighter than the ordinary class of
50 machine used for this purpose; further a perfectly horizontal motion is obtained, and the cloth is folded evenly as regards the length of such folds; further, the use of complicated mechanism in the "folding blade" carrier, is
55 obviated, and such blades need not be changed.

What we claim as our invention is:—

1. A cloth folding machine comprising a frame, an arm having a slot in its lower end, a pin passing through said slot into the
60 frame, folding blades pivoted on the upper end of the arm, a roller on the arm, said frame having a slot therein having upwardly curved ends in which the roller engages, and means for oscillating the arm, said curved
65 slot and roller causing the upper end of the arm to move in a horizontal plane.

2. A cloth folding machine comprising a frame having a slot therein having upwardly curved ends, a vertical arm having a slot in
70 its lower end, a pin on the frame engaging with said slot, a roller on the arm engaging with the curved slot in the frame, means for oscillating the arm whereby the curved slot and roller will cause the upper end of said
75 arm to move in a horizontal plane, folding blades pivoted on the upper end of the arm, a tappet on the blades and guides engaging with the tappet to tilt the blades.

3. A cloth folding machine comprising a
80 frame, an arm pivoted at its lower end to the frame so as to have longitudinal movement, folding blades pivoted on the upper end of the arm, a roller on the arm, said frame having a slot therein having upwardly curved
85 ends in which the roller engages, means for oscillating the arm whereby the curved slot and roller will cause the upper end of the arm to move in a horizontal plane, clamp mechanism, a curved lever for actuating the
90 clamp mechanism, said lever projecting into proximity to the curved end of the slot, and a tappet on the operating arm projecting into said curved slot and adapted to contact with the lever to cause the same to operate the
95 clamp mechanism.

4. In a cloth folding machine a clamp mechanism comprising a stationary part K¹, a part K² sliding therein, a clamp K carried
100 by said part K², a spring connecting the part K² with the part K¹ and holding said part K² in its lower position, a lever pivoted on the stationary part K¹ and connected to the movable part K², and means contacting with said lever for raising said movable part.
105

In witness whereof we have hereunto set our hands in the presence of two witnesses.

ALFRED KAY.

MATTHEW TRATTLES.

Witnesses:

LEWIS WAUGH,

JOSEPH T. KIRBY.