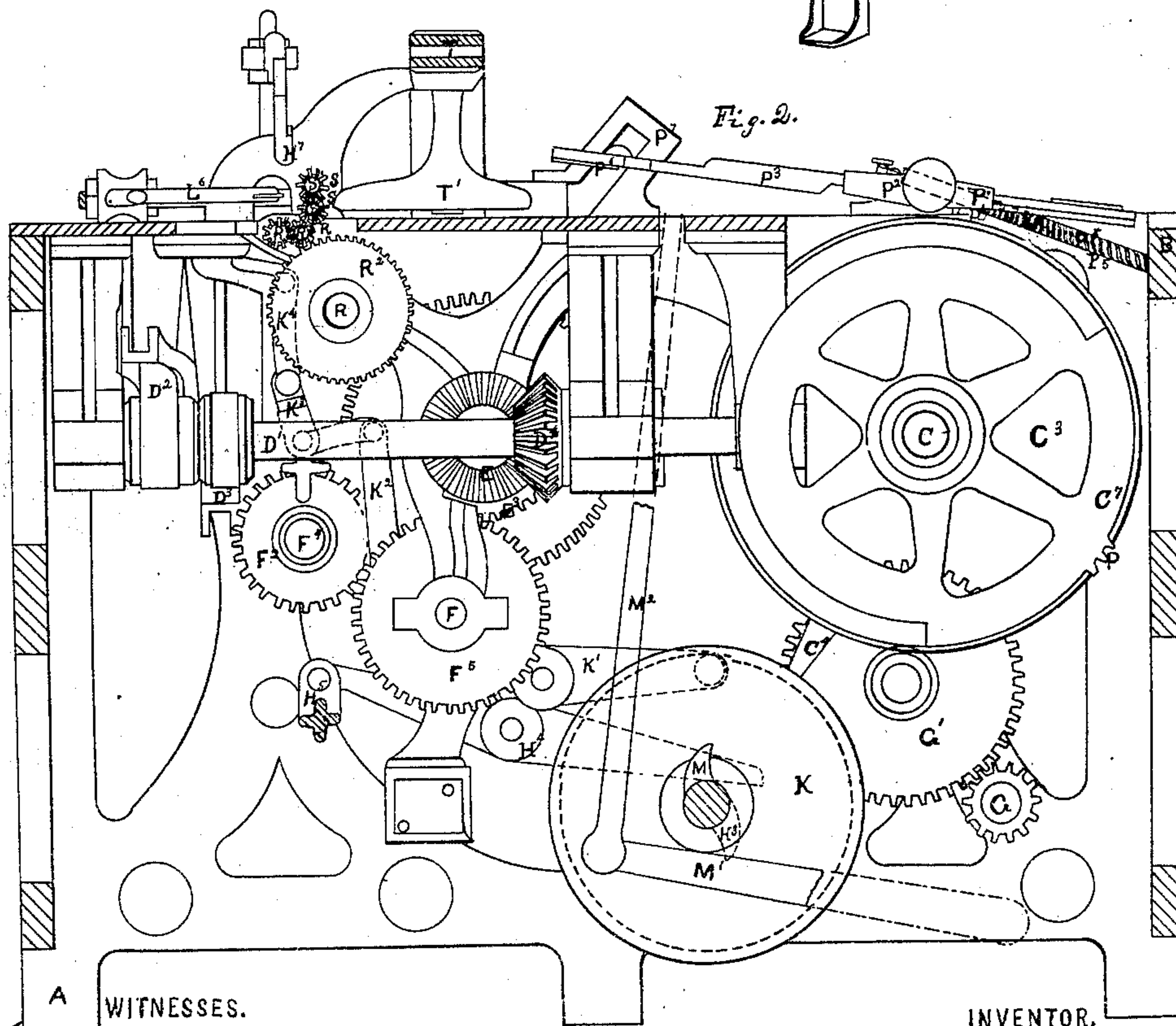
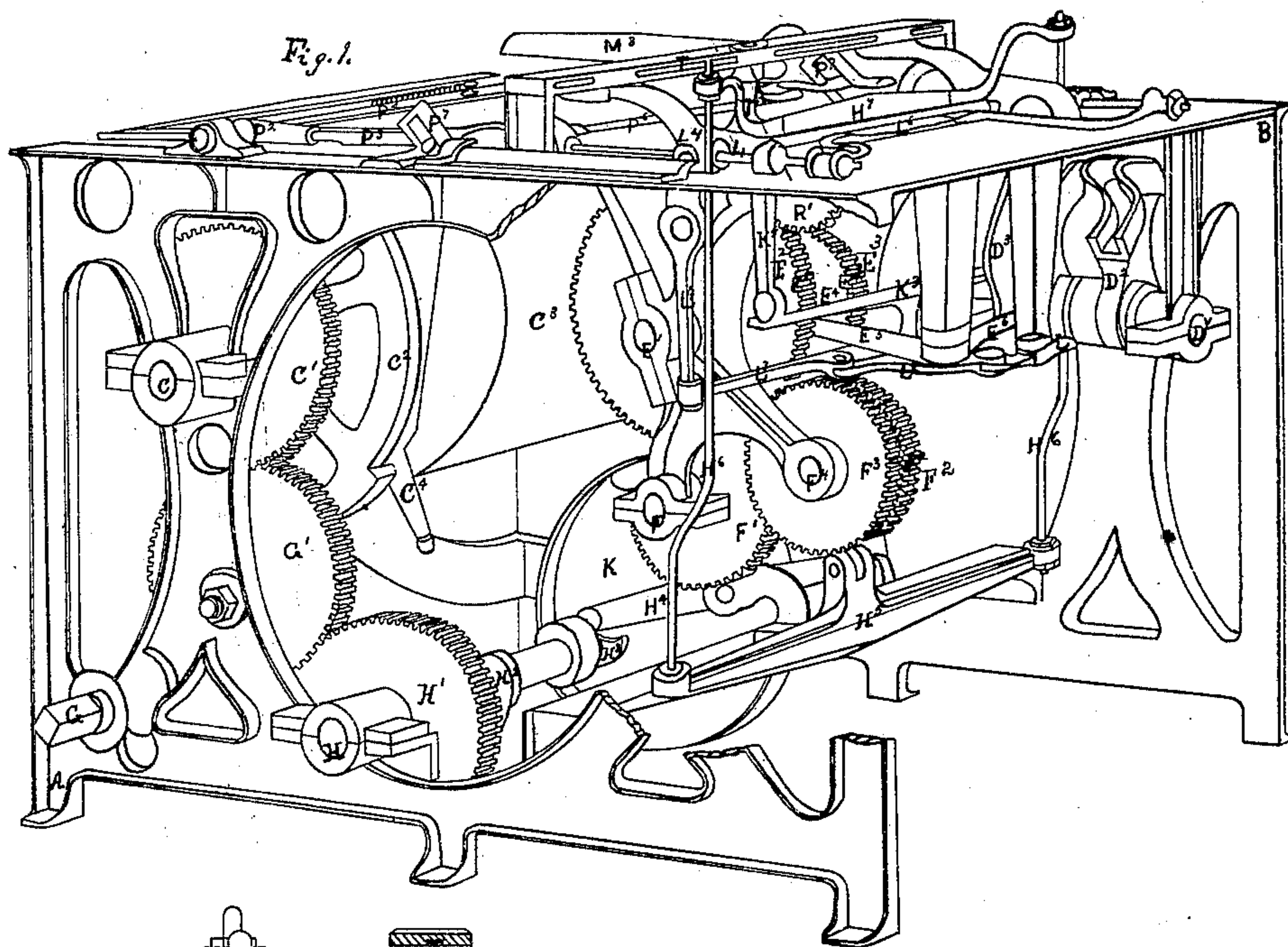


Charles T. Annan
Paper-Bag Machine.

N^o 90,624.

Patented June 1 1869.



A

WITNESSES.

Frankly Parker
Aileen Barry

INVENTOR.

Ch^{rs} F. Amann

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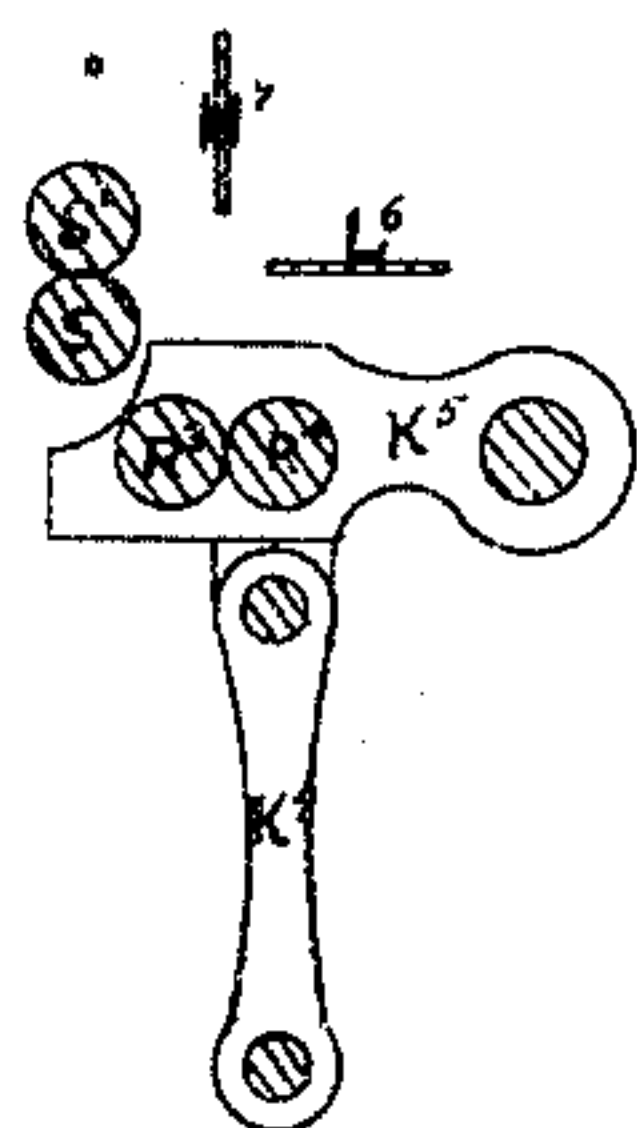


Fig. 4.

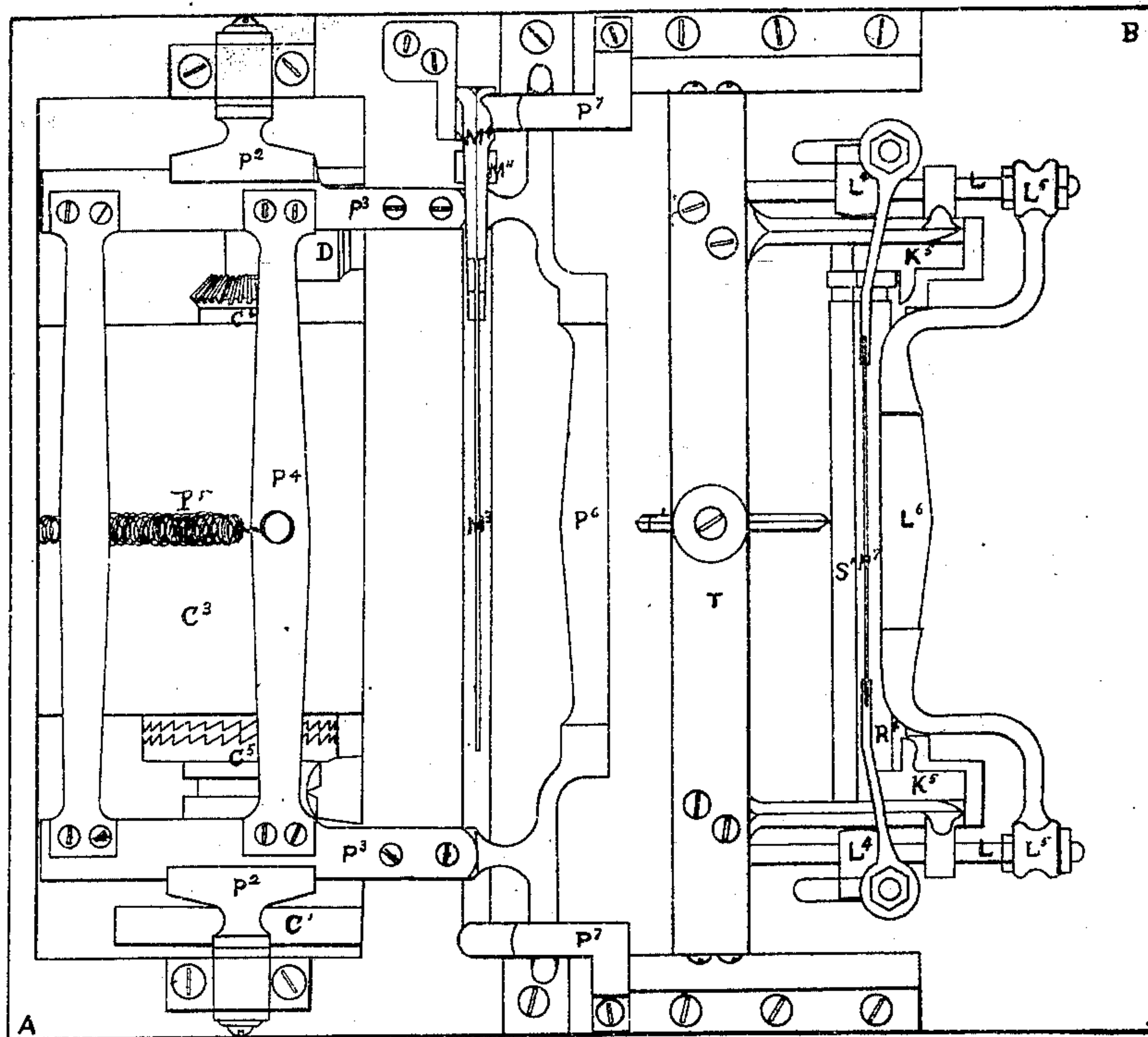


FIG. 3.



Fig. 5.

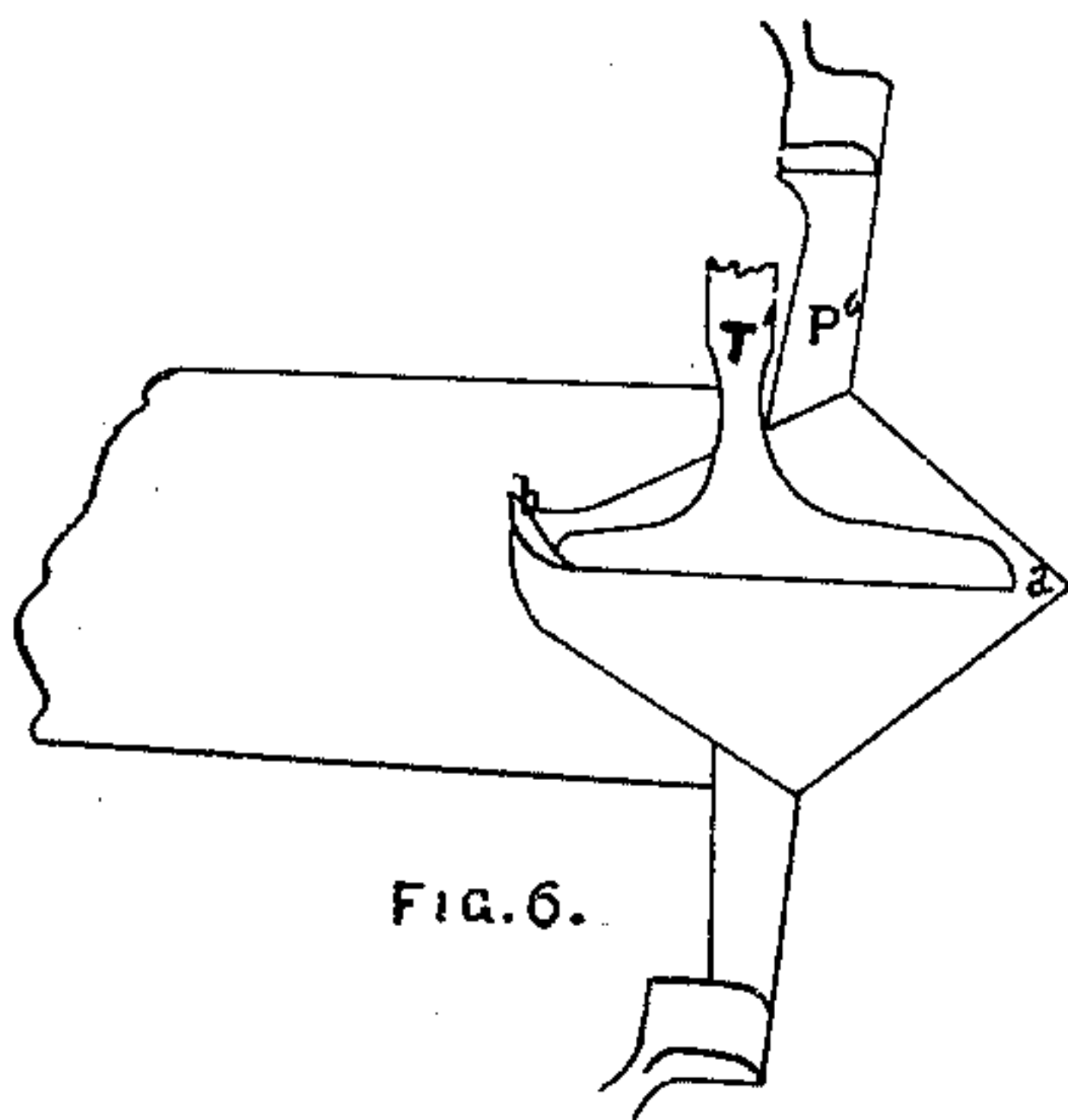


FIG. 6.

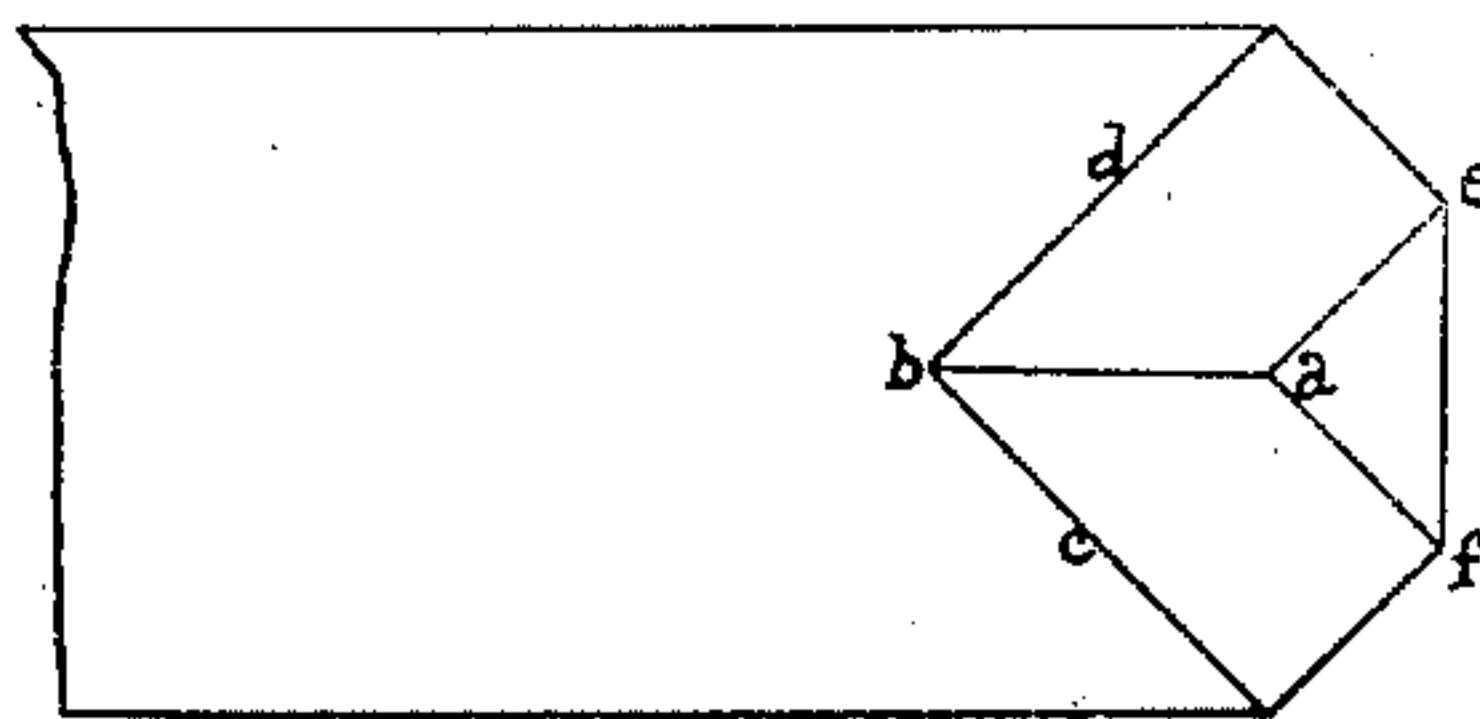


FIG. 7.

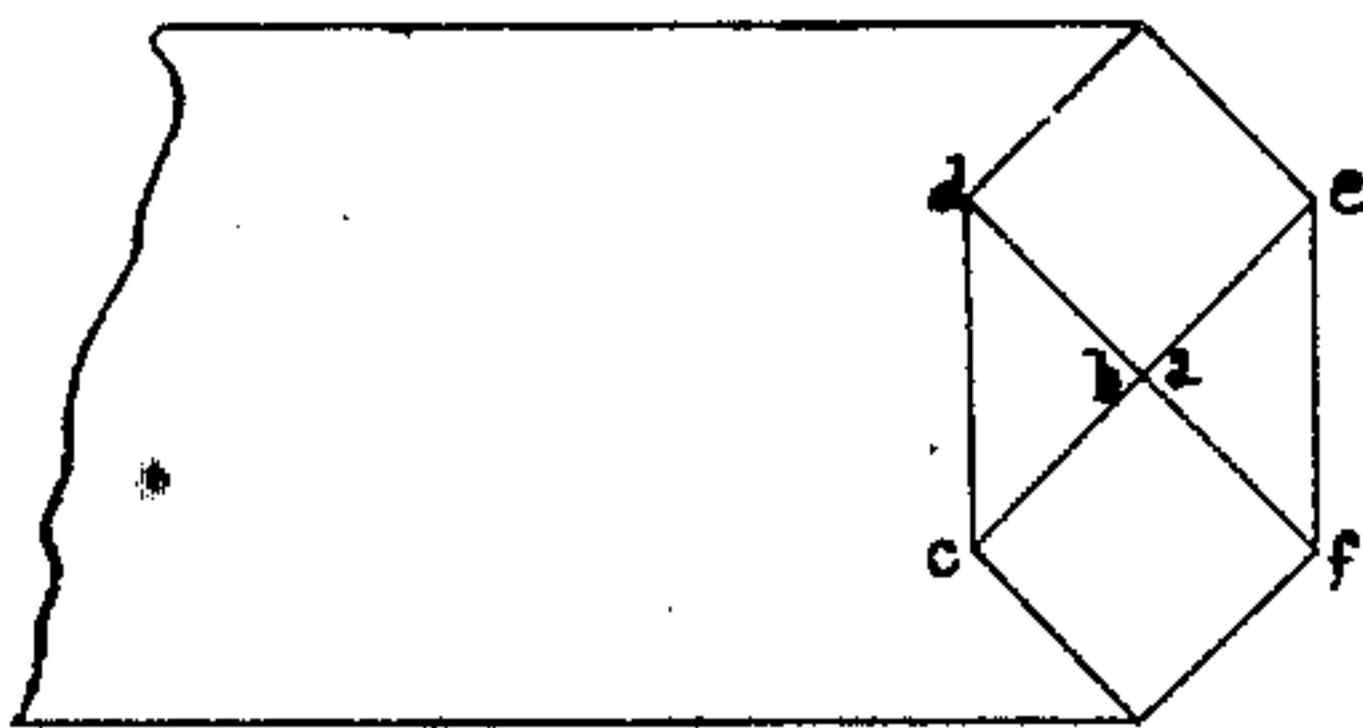


FIG. 8.

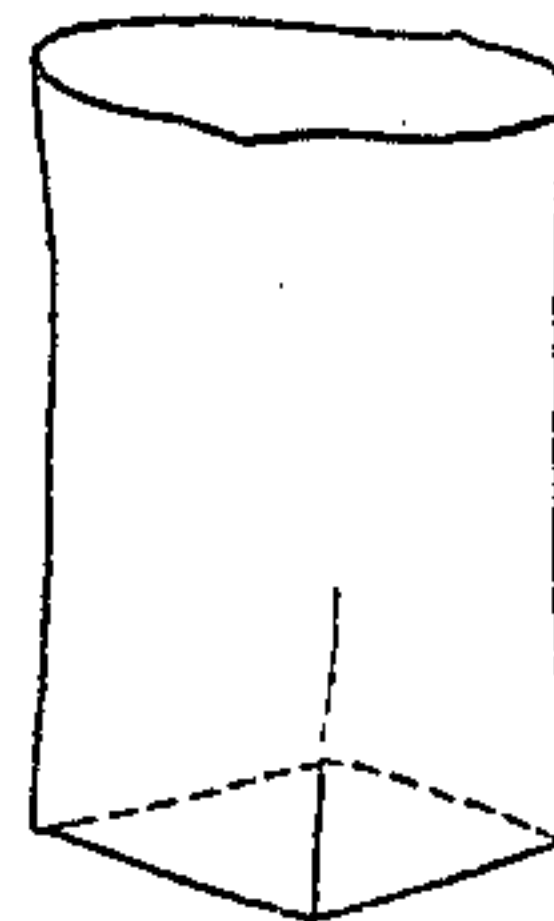


FIG. 9.

INVENTOR.

WITNESSES.

William Edson
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Chas. F. Roman

UNITED STATES PATENT OFFICE.

CHARLES F. ANNAN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO B. S. BINNEY, OF SAME PLACE.

IMPROVEMENT IN PAPER-BAG MACHINES.

Specification forming part of Letters Patent No. 90,624, dated June 1, 1869.

To all whom it may concern:

Be it known that I, C. F. ANNAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Making Square-Bottomed Bags; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in a series of mechanical combinations too complicated to admit of brief description. I will, therefore, proceed to describe it by reference to the drawings.

Figure 1 is a perspective view of my machine, a part of the frame removed so as to show the working parts more plainly. Fig. 2 shows, partly in section and partly in elevation, my machine, the view being taken from the rear. Fig. 3 is a plan of my machine. Fig. 4 shows in detail the folding-rolls. Fig. 5 represents the paper as it leaves the former. Fig. 6 represents the paper as it passes under the opener. Fig. 7 represents the paper after it has passed the first set of rollers; and Figs. 8 and 9 represent the paper after it has passed the last set, and is a complete bag.

The same letter, with a number annexed, is used for all parts of the device that act directly together to produce a desired result.

A and B represent the frame of the machine. G, Figs. 1 and 2, represents the propelling-shaft to the whole machine. G' is a gear-wheel, serving to communicate motion to the gears C¹ and H¹. The shaft C, Figs. 1 and 2, carries two segment-gears, C², Fig. 1, and C⁷, Fig. 2; also, a toothed clutch, C⁵, and the bevel-gear C⁶, Fig. 3. The large feed-drum C³, Figs. 1 and 2, is hung loosely upon the shaft C, and is so arranged that it only revolves when the clutch C⁵ is thrown into connection with the clutch-ratchet attached to the drum C³, Fig. 3. This clutch is operated by the cam H², Fig. 1, acting through the lever C⁴. The cam H² is only partially shown; but as it is similar in its form to the cam shown at D², Fig. 1, its construction and operation may be readily understood. The segment gear-wheels C², Fig. 1, and C⁷, Fig. 2, are provided with a few teeth, as shown at P, Fig. 2. These teeth

mesh into teeth P¹, Fig. 2, and thus carry forward the frame P² P⁴ P³, Fig. 3, which holds the back-tucker P⁶ a limited distance, the spring P⁵ serving to draw it back. This frame moves backward and forth in the rocking slides P² P², Fig. 3. Its front end, to which the folder P⁶ is attached is directed downward, as it moves forward, by the guide P⁷, Figs. 2 and 3. M³, Figs. 1 and 3, is the cutting-off knife, and works automatically to cut off the paper at the proper length after it has been fed in by the roller C³. This knife is operated by the cam M, Fig. 2, acting through the lever M¹ and link M². The end of the link M², shown at Fig. 3, connects with the swinging socket M⁴ of the knife M³. T is a bridge, which serves to hold the opener T', Figs. 1, 2, and 3. The rollers S S¹ R² R⁴, Figs. 2 and 4, are all connected together by spur-gear, as shown in Fig. 2, and are driven by the gear-wheel R², which meshes with the gear of roller R³. The shaft R is driven by gear-wheel R¹, Fig. 1, which meshes with the large gear E², Fig. 1. The motion of the wheel E² is not continuous, nor always in the same direction. It makes a partial revolution in one direction, then suddenly stops and makes a partial revolution in the other direction, its direct motion greatly exceeding its reverse motion. As this wheel E² connects, through R¹, R, and R², as has been shown above, with the rollers S S¹ and R³ R⁴, it will be seen that these rollers will partake of that intermittent and reverse motion. This peculiar motion is imparted to the gear-wheel E² by a clutch, E⁴, on the shaft E¹. Both gears E² and E³ on the shaft E¹ are free to revolve independent of the shaft; but the clutch E⁴ must revolve with the shaft, and, having two notched faces, it will cause either the gear E² or E³ to revolve when forced against one or the other.

When the clutch occupies a middle position between the two gear-wheels neither of them will revolve, although the shaft E¹ is in motion. When the clutch E⁴ is in contact with the wheel E², then the wheel E² will partake of the direct motion of the shaft E¹; but when the clutch is in connection with the wheel E³, then the wheel E³, acting through the wheel F⁵, Fig. 2, and shaft F, Figs. 1 and 2, gear F¹, Fig. 1, and gears F² F³, Fig. 1, will give a re-

verse motion to the gear-wheel E^2 . The clutch E^4 is actuated by the segment-cam D^3 , Figs. 1 and 2, acting through the bent lever $E^5 E^6$, Fig. 1.

H^7 , Figs. 1, 2, and 3, is a vertical tucker, which serves to pass one fold of the bag down between the rollers $R^3 R^4$. This tucker is operated by the cam H^3 , Fig. 1, which operates the lever H^4 , beam H^5 , and stays $H^6 H^6$. L^6 is a horizontal tucker, which serves to pass one fold of the bag between the rollers $S S'$, and is operated by the cam D^2 through the lever L , the link L^2 , the bar L^3 , the swinging arm $L^4 L^4$, and the slides L^5 . K , Figs. 1 and 2, is a face-cam, operating, through the lever K^1 , bent link K^2 , and link K^3 , to draw down the standard K^4 , which, being connected with the housings of the rollers $R^3 R^4$, serves to draw them down sufficiently, so that the roller R^3 will not bear upon the roller S , but yet not far enough to throw it out of gear with it.

The operation of my machine may be explained as follows: The paper from which the bag is to be made is fed into the machine by means of the large drum C^3 , Figs. 1 and 2, which, acting in combination with a former, (said former being made and arranged in any of the various known methods,) leaves the paper in the shape represented at Fig. 5.

As this operation thus far is common to other machines it does not need a particular description.

After a sufficient length of the paper, in the form represented in Fig. 5, is fed in to have reached well onto the opener T^1 , the feeding device is thrown out of gear. The tucker P^6 moves forward and slides the paper under the opener, the opener acting at the same time to hold back the upper part of the bag, as indicated by Fig. 6. The paper is now cut off, and being seized between the rollers S and R^3 , Fig. 2, its pointed end a , Fig. 6, is passed over the rollers $R^3 R^4$, so that the tucker H^7 may fold it at the line $e f$, Fig. 7, and force it between the rollers $R^3 R^4$, which are now revolving, so as to draw it down between them just a sufficient distance to press the fold down

flat, as shown by a , Fig. 7. The motion of all the rolls is now reversed, which action throws the upper fold of the bag b , Fig. 7, up in front of the rollers $S S'$, when the tucker L^6 will move up, and, striking at the line $c d$, Fig. 7, will fold and tuck this part between the rolls $S S'$, which continue to revolve in the proper direction until the whole bag has been drawn through them. The bag is now in the form shown at Fig. 8, and is complete.

Fig. 9 represents the same bag open.

During the various foldings at the proper intervals the adhesive mixture is applied, so that the bag leaves the machine complete in all respects.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The segment gear-wheel C^7 , in combination with a tucker-frame, $P^3 P^3 P^4$, operating substantially as described, and for the purpose set forth.
2. The tucker-frame $P^3 P^3 P^4$, in combination with the pivoted slides $P^2 P^2$ and the guides $P^7 P^7$, substantially as described, and for the purpose set forth.
3. The tucker P^6 , in combination with the opener T^1 , operating substantially as described, and for the purpose set forth.
4. The combination and arrangement of the four rollers $S S'$ and $R^3 R^4$, operating together, substantially as described, and for the purpose set forth.
5. Combining with the rollers $R^3 R^4$ the device consisting of the standard K^4 , links $K^3 K^2$, lever K^1 , and cam K , or its mechanical equivalent, operating as described, and for the purpose set forth.
6. The rollers $S S'$ and $R^3 R^4$, in combination with the vertical tucker H^7 and horizontal tucker L^6 , operating as described, and for the purpose set forth.

CHS. F. ANNAN.

Witnesses:

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