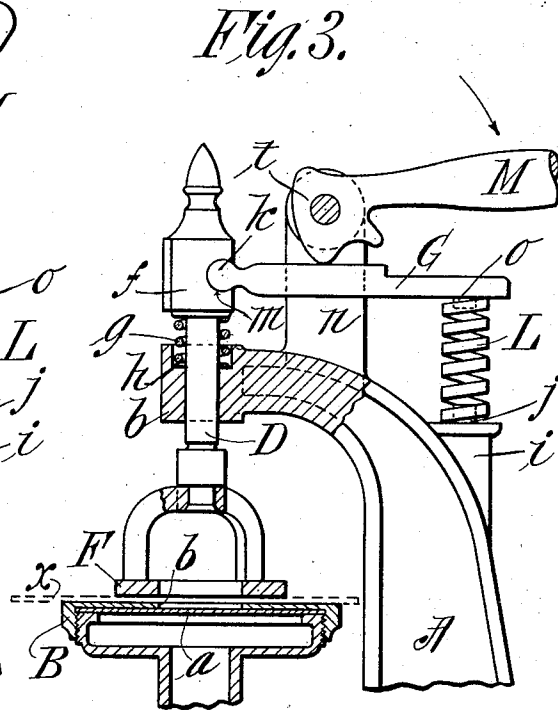
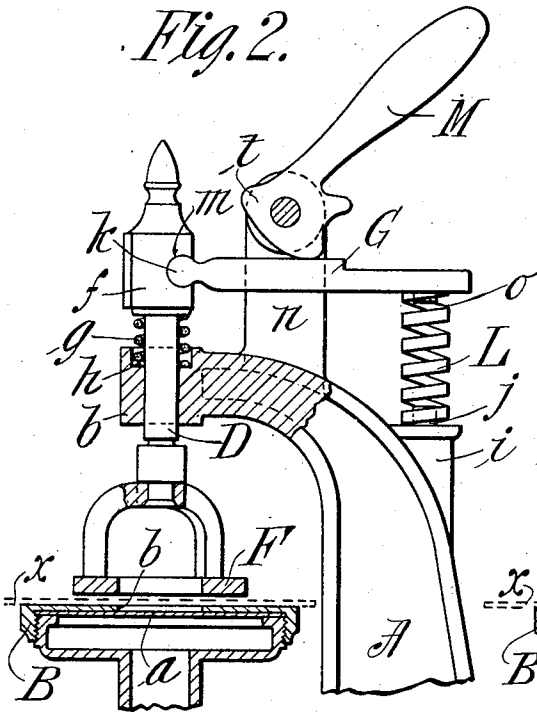
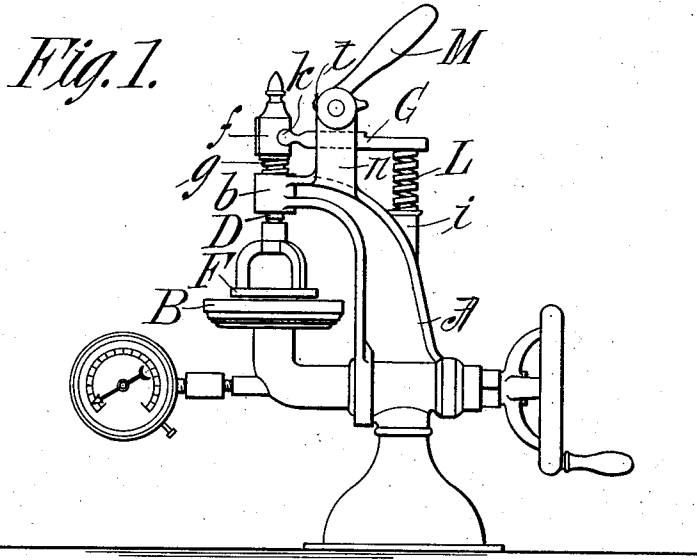


J. O. STANLEY.  
PAPER TESTING MACHINE.  
APPLICATION FILED DEC. 14, 1911.

1,025,101.

Patented Apr. 30, 1912.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## PAPER-TESTING MACHINE.

1,025,101.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed December 14, 1911. Serial No. 665,629.

*To all whom it may concern:*

Be it known that I, JOHN O. STANLEY, a citizen of the United States of America, and resident of South Hadley Falls, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Paper-Testing Machines, of which the following is a full, clear, and exact description.

This invention which relates to paper testing machines of the type known in the trade as the "Mullen tester," more particularly pertains to means for clamping the paper or other sheet material upon the horizontal platform in conjunction with which there is employed an elastic diaphragm subject to displacement upwardly against the paper, under the action of liquid,—in an inclosed chamber of which the diaphragm constitutes a wall,—which is subjected to a greater or less pressure. The clamping member in these testers consists of a foot piece carried by a vertically guided stem and which is forced downwardly, in some cases by a screw-engaging hand wheel, and in some cases under the action of a cam lever. The employment of the cam lever has been preferable owing to the greater speed with which it may be operated; but it has had certain minor disadvantages in that the action of the cam lever has been such as to cause a lateral crowding of the stem, carrying the clamping foot piece, so that the freedom of the vertical movement of the stem through its guiding member has been impaired; and the cam lever, moreover, has operated unequally on papers of different thicknesses, in some cases with insufficient pressure, and in other cases so as to force the clamp foot piece against the paper on the platform with such a hard pressure as to indent, weaken, or break the paper. And where the screw engaging hand wheel has been employed to manually operate the clamp, there is liable to be variations in the clamping pressure, and where such pressure is insufficient the paper will not be held in its proper confinement on the platform so that an increased area of the paper under the distention of the diaphragm will be drawn within the circular opening in the clamping foot; and this greater area of the paper being subjected to the breaking pressure will cause a

higher test to be recorded than would be the case if the paper were properly confined and only the standard area of the paper subjected to the breaking test.

The objects of the invention are to combine means in combination with the stem carrying the clamping piece and the cam lever which will be operative to insure the free and easy guidance of the stem vertically without cramping or binding, and to assure that the paper will not only be clamped on the platform with all sufficient firmness and uniformity at all places of bearing thereon by the foot piece, but that the foot piece may not at any time and under any conditions have any such excessive pressure bearing on the paper as to indent, rupture, weaken or otherwise impair the same.

The invention is described in conjunction with the accompanying drawings in which:

Figure 1 is a side elevation of a Mullen tester in which my improved clamping device is applied. Fig. 2 is a sectional elevation of the head portion of the testing machine showing the novel parts on a larger scale with the foot piece in its free or raised position. Fig. 3 is a view similar to Fig. 2 but showing the clamping device as in its "closed" position.

In the drawings, A represents the standard or upright having the usual paper supporting platform B provided with an elastic diaphragm *a* over which is an aperture *b* upwardly through which the diaphragm may be distended for its stress upon the paper or other sheet material indicated by dotted lines at *x*, it being understood that the diaphragm is subjected to the compression of liquid contained in the passage and chamber therebelow as usual in this class of machines. The upper portion of the standard is made of goose-neck form so that there is a vertically passaged guiding head *b* for the stem D which is movably guided therethrough. The stem carries the paper clamping foot F at its bottom, and it has a shoulder-forming enlargement *f* at an upper portion thereof above the guiding head *b*. The spiral spring *g* is in compression between the guiding head and the shoulder formed by the enlargement *f*,—the lower portion of such spring being located within an upwardly opening socket *h* therefor in the head. The back of the goose neck por-

tion of the standard is made with a boss *i* which is formed flat at its top to constitute a spring-rest; and this part is formed with an upwardly extending teat *j*. The spiral spring *L* is supported on the boss or spring rest *i* and is retained against displacement by the teat *j*.

*G* represents a substantially horizontal bar, the forward end *k* of which is of rounded form and is engaged in a circular recess *m* which is formed in and opens side-wise at the shoulder forming enlargement *f*. This forms a pivotal engagement between the forward end of the bar and the clamping foot carrying stem *D*. The rear end portion of the bar *G* rests on the top of the spiral spring *L*, disengagement between the spring and bar being prevented by the entrance within the top coil of the spring of the downwardly protruding teat or stud *o*.

The portion of the goose neck curving from the vertical to the horizontal is provided with upstanding ear pieces *u* between which is provided the head *t* of the cam lever *M*.

In the action of the cam lever, in which it is swung from the open position, Fig. 2, to the closed position, Fig. 3, there is little or no tendency of such lever to force the bar *G* forwardly to cramp or bind the stem *D* in its guiding head, and by the employment of standardized springs *L* in the situation shown, irrespective of the thickness of the paper or sheet material the confinement thereof by the clamping foot will be at all times practically with the same degree of pressure so that there will be no indentation, breaking or weakening of the paper

where it is clamped on the supporting platform of the paper testing machine.

I claim:—

1. In a paper testing machine, in combination with a standard having a paper supporting platform and having a guiding head thereabove, a stem, vertically movable in said head, having a paper clamping foot, a spring exerting a force upwardly relatively to said stem, a substantially horizontal bar having one end thereof engaged with the stem, a spring on which the other end portion of the bar rests, and a cam-lever pivoted to an upper part of the standard, and coacting with an intermediate portion of said bar.

2. In a paper testing machine, in combination with a standard having a paper supporting platform and having a vertically apertured guiding head thereabove, a stem, vertically movable through said head, having a paper clamping foot, and having an enlargement at an upper portion thereof, made with a circular sidewise opening recess, a substantially horizontal bar having one end thereof of rounded form and engaged in said recess of the stem enlargement, a spring on which the other end portion of the bar rests, a cam-lever pivoted to an upper part of the standard, and coacting with an intermediate portion of said bar, and a spring in compression between the guiding head and said stem enlargement.

Signed by me at Holyoke, Mass., in presence of two subscribing witnesses.

J. O. STANLEY.

Witnesses:

F. P. CLEVELAND,  
HENRY C. AVERY.