

No. 626,284.

Patented June 6, 1899.

J., A. & G. LYONS.
APPARATUS FOR TESTING EGGS.

(Application filed Jan. 31, 1899.)

(No Model.)

2 Sheets—Sheet 1.

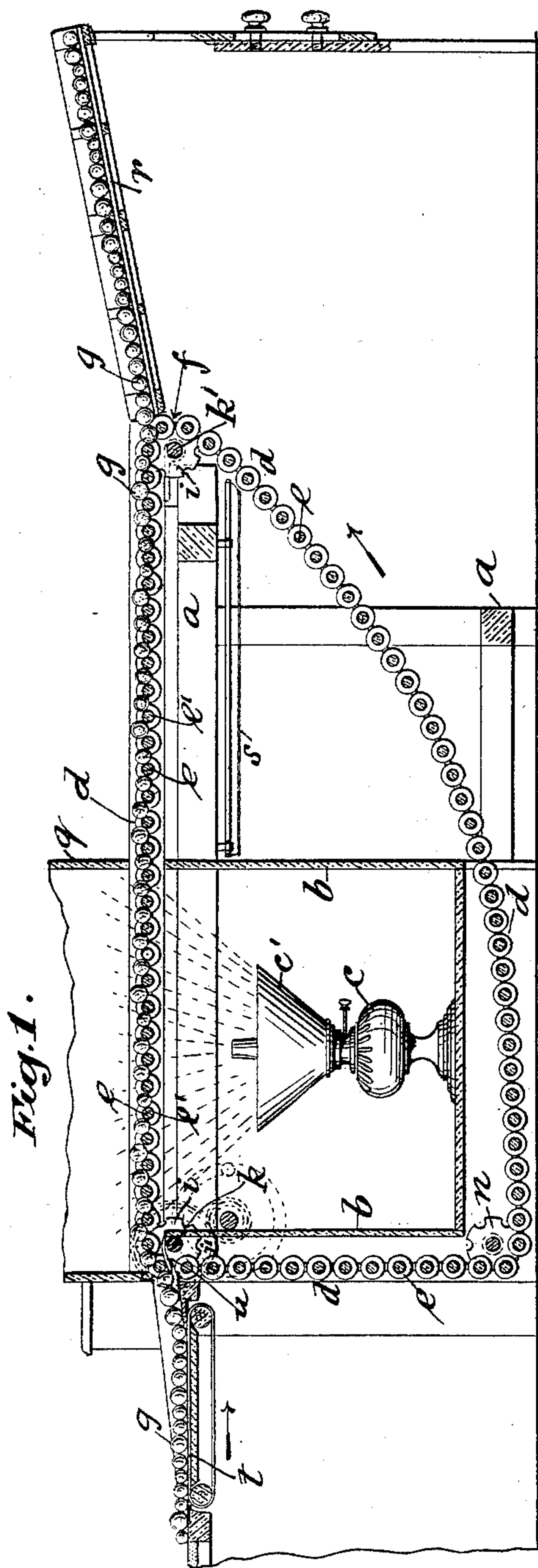


Fig. 1.

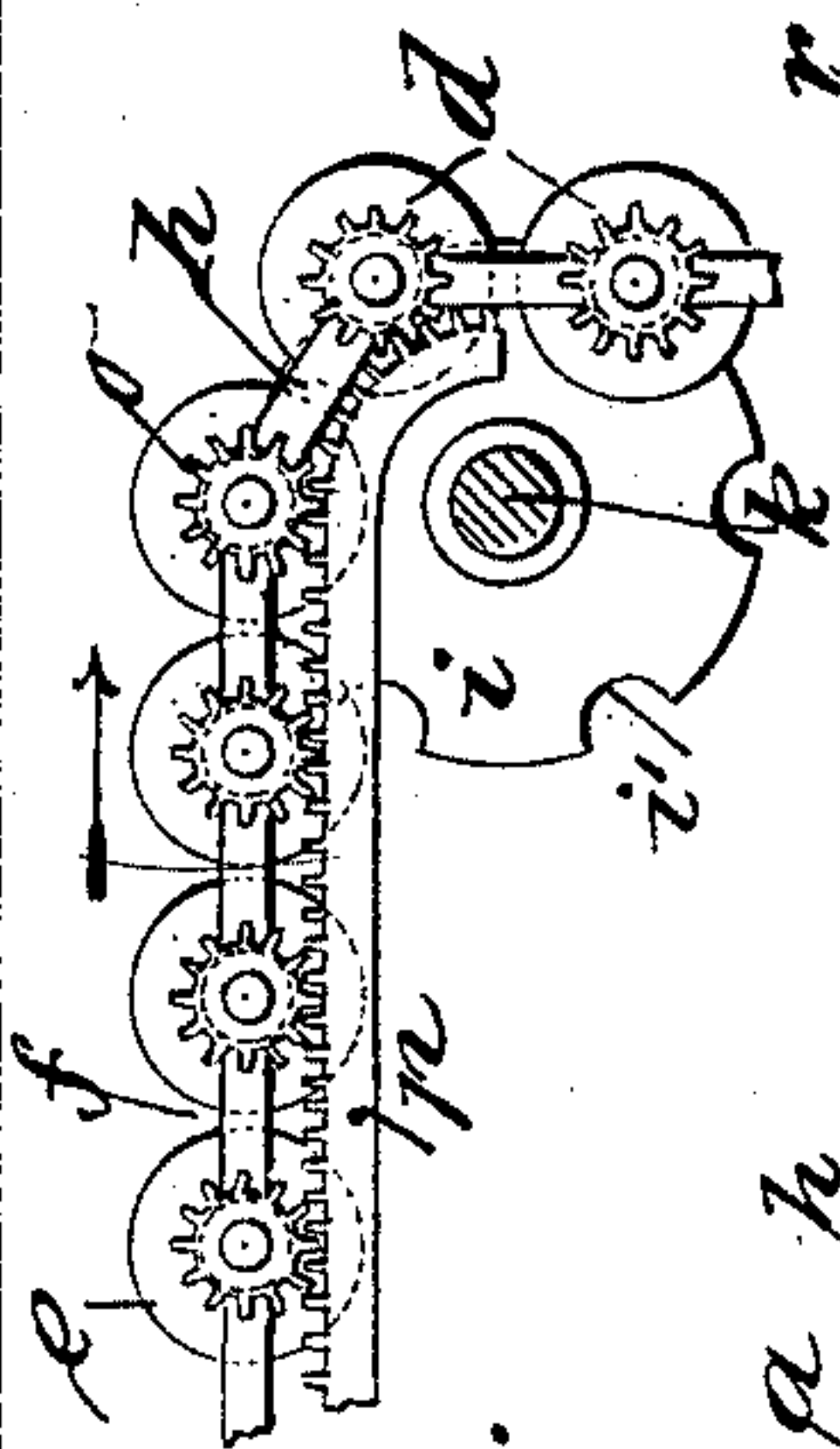


Fig. 3.

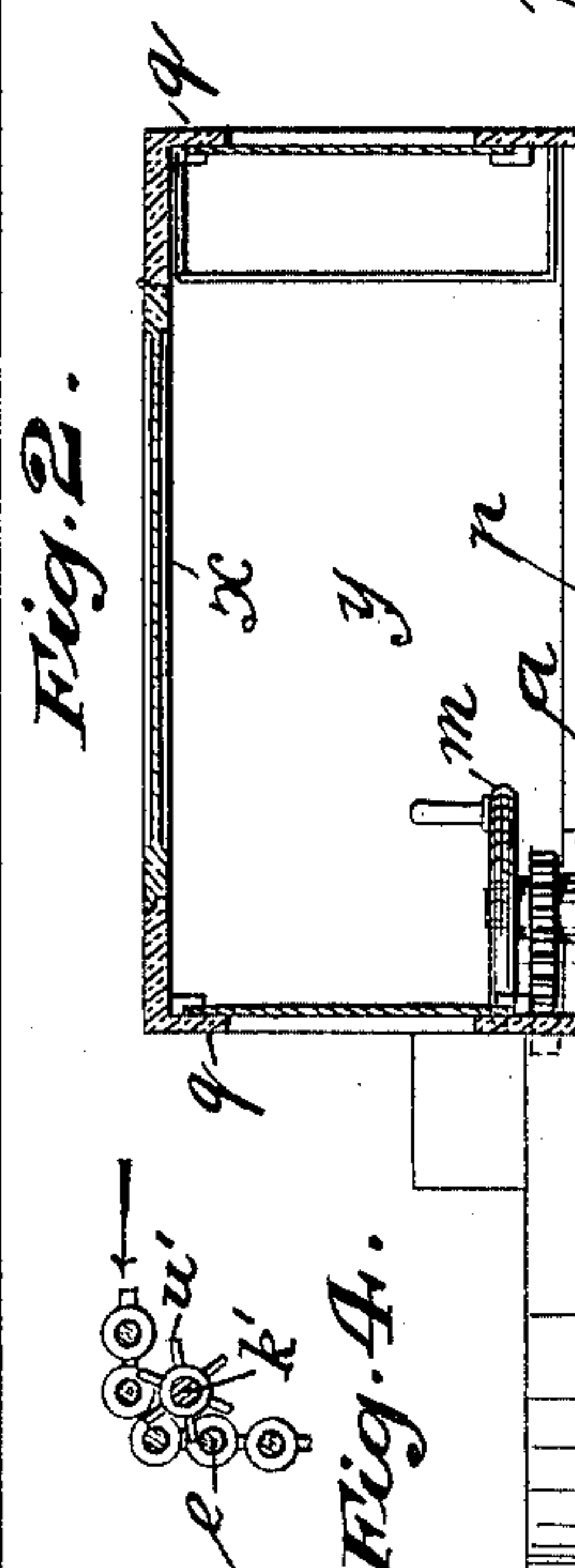


Fig. 2.

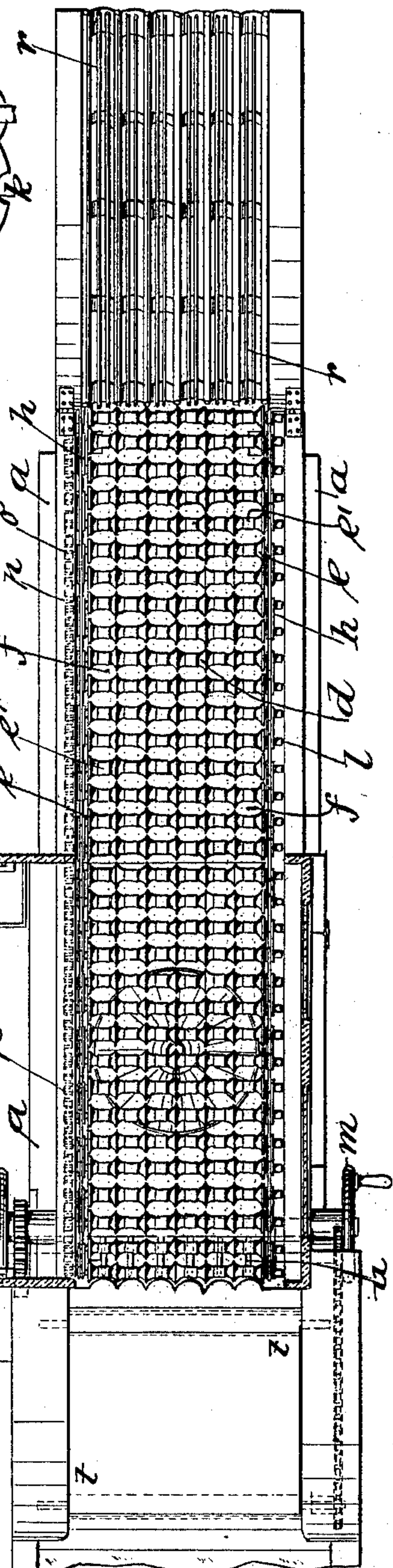


Fig. 4.

Witnesses
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2 Sheets—Sheet 2.

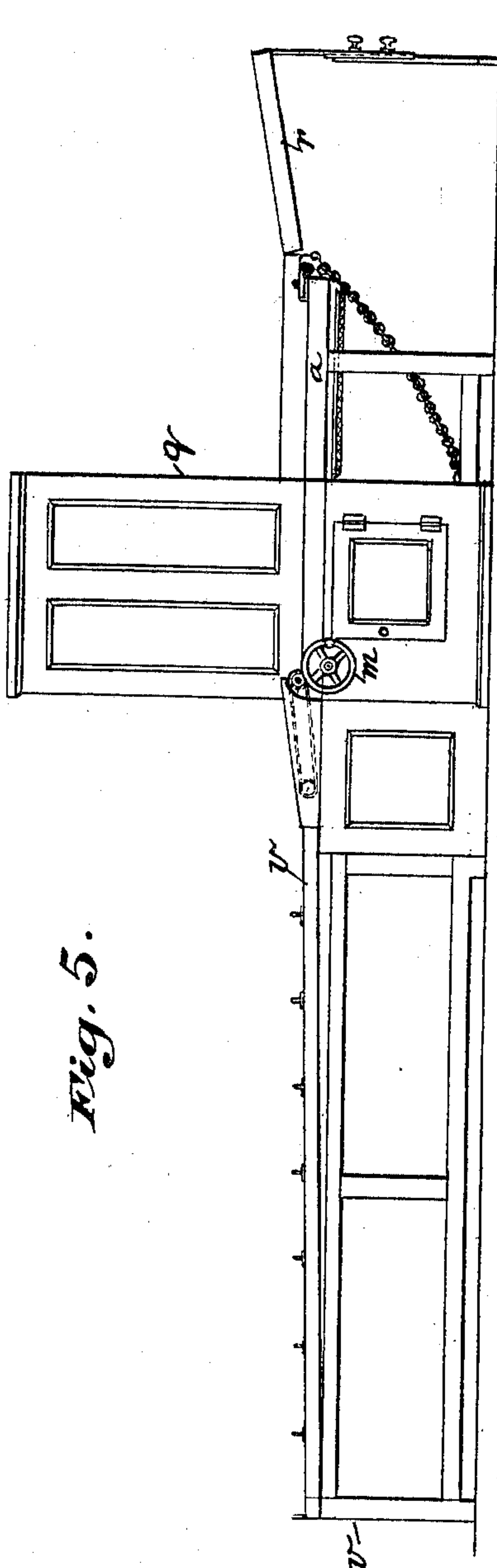


Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES LYONS, ALFRED LYONS, AND GEORGE LYONS, OF MANCHESTER,
ENGLAND.

APPARATUS FOR TESTING EGGS.

SPECIFICATION forming part of Letters Patent No. 626,284, dated June 6, 1899.

Application filed January 31, 1899. Serial No. 704,021. (No model.)

To all whom it may concern:

Be it known that we, JAMES LYONS, ALFRED LYONS, and GEORGE LYONS, subjects of the Queen of Great Britain, residing at Manchester, in the county of Lancaster, England, have invented new and useful Improvements in and Connected with Apparatus for Testing Eggs, (for which we have made application for patent in Great Britain, No. 14,525, dated July 1, 1898,) of which the following is a specification.

Our invention relates to an improved construction of apparatus for testing eggs which may be used by itself or in connection with an egg-sorting machine—for instance, such as described and shown in our application for United States Letters Patent, Serial No. 629,052, filed March 24, 1897—the objects being to render such operation of testing more rapid, reliable, and thus less expensive than heretofore has been the case. We attain these objects by the mechanism illustrated in the accompanying two sheets of drawings, in which—

Figure 1, Sheet I, is a longitudinal section, Fig. 2 a plan, and Figs. 3 and 4 are details, of our invention shown separately from an egg-sorting machine. Fig. 5, Sheet II, is a side view showing our invention as used in connection with an egg-sorting machine.

Similar letters refer to similar parts throughout the several views.

In carrying out our invention, and referring to Sheet I, we construct a frame *a*, one end of which is formed into a chamber *b*, open at the top and adapted to receive a source of light—say a lamp *c*. Supported on the said frame we employ an endless apron *d*, composed of rollers *e*, arranged in close proximity to each other and their peripheries formed with annular grooves in such a manner that two adjacent grooves form an opening or bottomless receptacle *f*, in which the eggs *g* to be tested are placed by hand or otherwise. (See Figs. 1 and 2.) These rollers are connected together at their ends by links *h*, (see Fig. 3,) in which they can rotate freely, and are supported at each end of the said frame by two disks *i*, secured upon the shafts *k k'*, suitably mounted on the frame *a*, the periphery of the said disks being formed with

recesses *i'*, adapted to receive the ends of the roller-shafts *l*. One of the said disk-shafts—in the present instance *k*—is adapted to be rotated by hand—say by means of a hand-wheel *m* and suitable intermediate gearing—or by motive power for the purpose of causing the said apron supplied with eggs to slowly travel over the chamber *b*, illuminated by the lamp *c*. At the delivery end the apron *d* is caused to descend vertically by being carried over two other recessed disks *n*, employed near the bottom of the apparatus.

Each roller-shaft *l* has secured at one or both ends a toothed (or friction) pinion *o*, (see Fig. 3,) arranged to gear (or be in frictional contact) with a rail *p*, secured to the top of the frame *a*, so that when the apron *d* is moved the rollers *e* begin to revolve and turn the eggs placed thereon, and when passing over the illuminated chamber *b* they are thoroughly exposed to the rays of the light and the bad eggs are easily detected and can be readily picked out. The said rail may extend along the illuminated chamber *b* only or along the whole length of the frame *a*, as shown in the drawings, so that the eggs are turned around immediately after they have been placed on the apron, and thereby are freed from straw and caused to assume their proper position between the rollers *e*.

In order to prevent breakages and to insure the eggs being turned regularly, we may cover the grooved part of the rollers *e* with felt *e'* or other soft material giving grip.

In order to confine the rays of light as much as possible below the apron *d*, we may cover the respective part by a hood *q*, (see also Fig. 5,) formed large enough to hold the attendant, who moves the apron *d* and picks out the bad eggs. The attendant enters through the door *x*, Fig. 2, and stands in the space *y*.

When using a lamp to illuminate the chamber, we furnish it with an inverted reflector *c'*, which projects the rays of light effectually against the under side of the apron, and thus against the eggs thereon.

In lieu of placing the eggs directly upon the apron *d* a corrugated chute or inclined table *r* may be employed at its feeding end, adapted to receive and permit the eggs to slide against the respective end of the apron

d, which picks same up row by row, whereby the necessity of placing the eggs between the rollers *e* by hand is obviated, and thus a great deal of time and labor saved. Below the feeding end of the apron *d* a net *s* or the like is employed to catch very small eggs which the apron cannot hold and drop between the rollers *e*. At the delivery end of the apron *d* a table *t* is employed, which may be in the form of a rotating endless belt, as shown in the drawings, and which serves to receive the tested or fresh eggs as they roll from the apron *d* when the same descends.

To insure small eggs, which lie in the apron *d* lower than large eggs, rolling from the apron onto the table *t*, a row of springs *u* is employed, which as each row of eggs passes press against and push the eggs out of the apron *d*.

In lieu of the springs *u* a series of wheels *u'* may be secured upon the disk-shaft *k*, as shown in Fig. 4, the teeth of which enter between the rollers *e* and lift out the eggs.

Referring to Sheet II, when combining the egg-testing apparatus described with an egg-sorting machine *v*—for instance, such as described in the application hereinbefore mentioned—the egg-sorting machine forms a continuation of the table *t* of the egg-testing ap-

paratus, and the eggs deposited by the apron *d* onto the table *t* are allowed to roll or are carried thereby onto the table of the egg-sorting machine *v*.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In and connected with apparatus for testing eggs, an illuminated chamber *b* in combination with an endless traveling apron *d* composed of rollers *e* having annular grooves opposite each other, forming openings or bottomless receptacles *f*, adapted to receive and carry the eggs to be tested over the said illuminated chamber, all substantially as and for the purpose set forth.

2. In and connected with apparatus for testing eggs, the apron *d* composed of rollers *e* in combination with means for rotating the said rollers while the apron is traveling, all substantially as and for the purpose set forth.

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

JAMES LYONS.
ALFRED LYONS.
GEORGE LYONS.

Witnesses:

ALFRED BOSSHARDT,
STANLEY E. BRAMALL.