I. M. O'DONEL.

Adjustable Cutters for Cutting Soap, &c.

No. 227,643. Patented May 18, 1880.

Fig. 3.

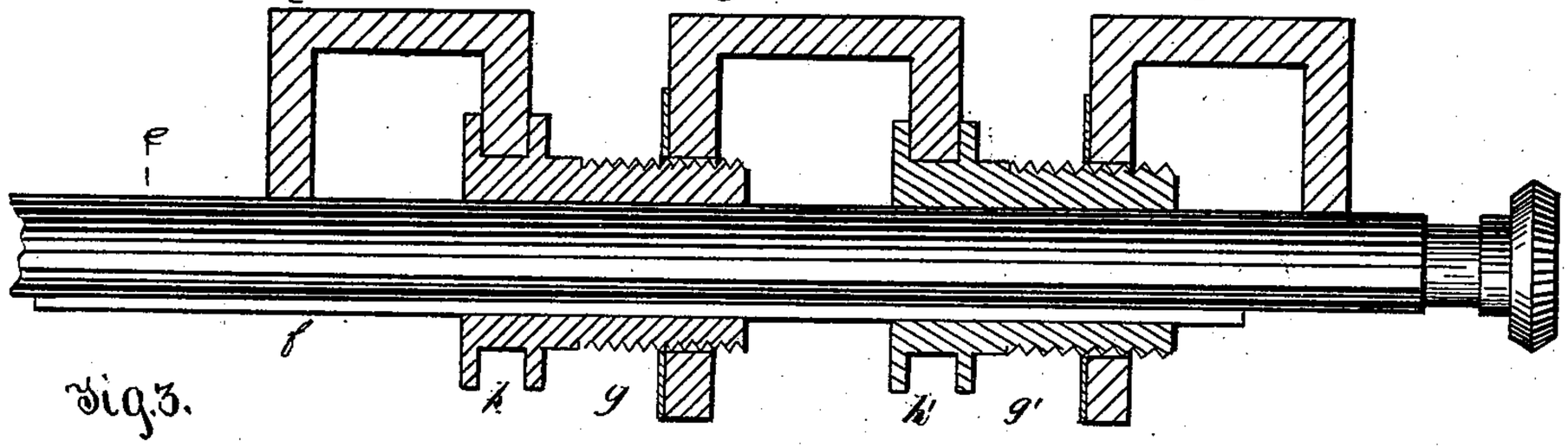


Fig. 2

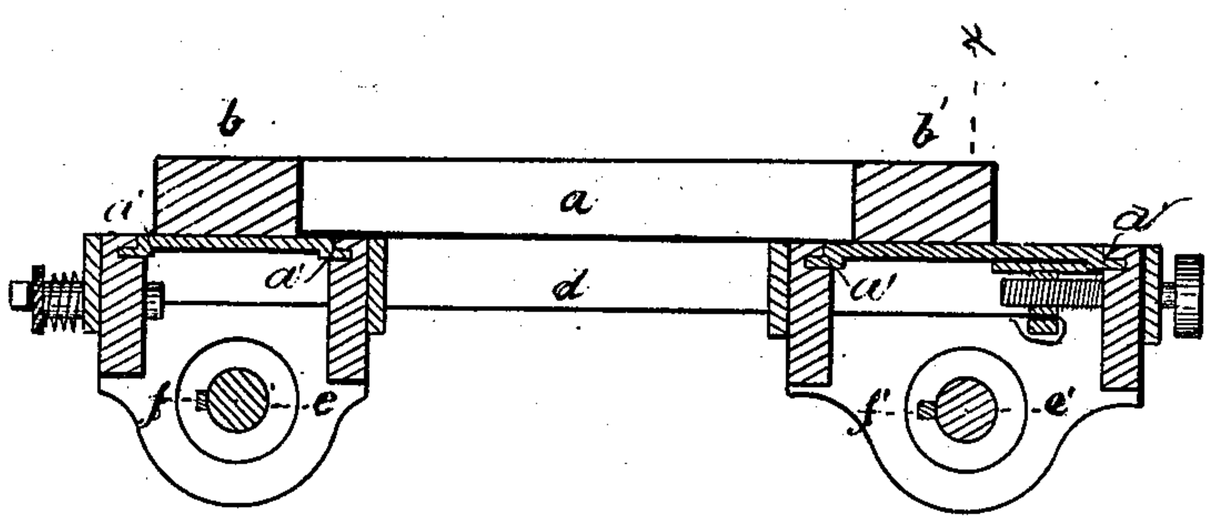
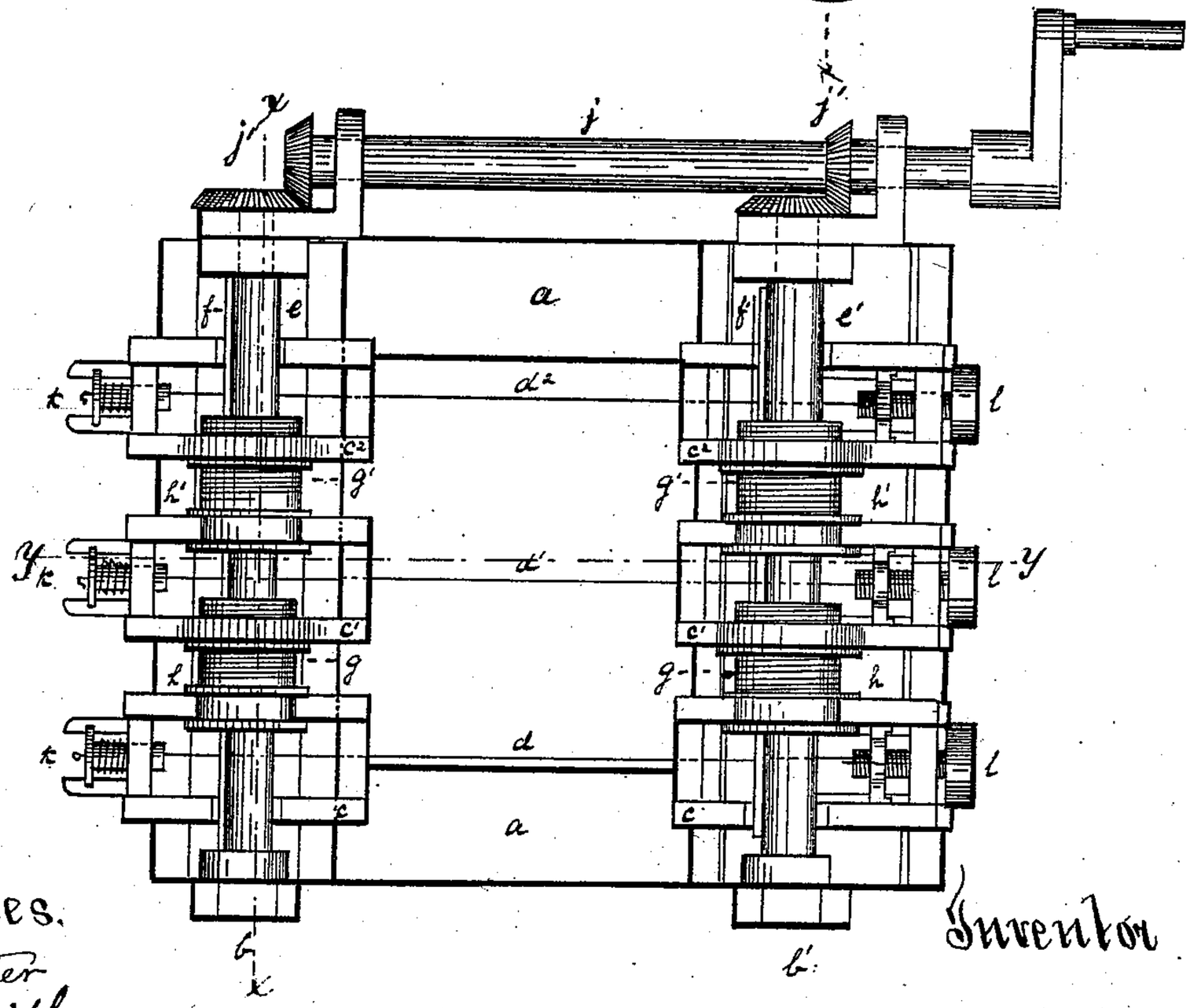


Fig. 1.



Witnesses.

L. C. Fitler

J K Smith

Inventor

Irwin M. O'Donel

by his attorneys

Bakewell & Kerr

UNITED STATES PATENT OFFICE.

IRWIN M. O'DONEL, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO WILLIAM J. FULLERTON, OF SAME PLACE.

ADJUSTABLE CUTTER FOR CUTTING SOAP, &c.

SPECIFICATION forming part of Letters Patent No. 227,643, dated May 18, 1880.

Application filed January 2, 1880.

To all whom it may concern:

Be it known that I, IRWIN M. O'DONEL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Adjustable Cutters for Cutting Soap and like Substances; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation showing my improvement as applied to soap-cutters. Fig. 2 is a sectional view through the line *y y*. Fig. 3 is a sectional view of the same through the line *x x*.

Like letters of reference indicate like parts in each.

My invention relates to adjustable cutters for cutting soap and other articles; and it consists of apparatus by which the knives can be readily adjusted so as to enlarge or decrease the size of the article cut, and at the same time preserve an equal distance between the several knives.

In cutting soap and similar substances it has been customary heretofore to use stationary knives placed at an equal distance apart, and a different set of knives had to be used whenever it was desirable to change the size of the bars or cakes to be cut.

By my invention, which I will now proceed to describe, so that others skilled in the art may manufacture and use the same, bars of different sizes may be cut by the same set of knives. This is accomplished by arranging the knives so as to be readily adjusted and at the same time preserve a regularity of distance between them.

In the drawings, *a* represents the frame-work, to which are attached the standards *b b'*, which support the shafts *e e'*, which pass through the carriages *c c' c²*. The carriages slide upon these shafts and upon ways *a'* of the frame *a*, and said carriers or carriages carry the cutting wires or knives *d d' d²*. These knives extend across between the carriers. The vertical shafts *e e'* are provided with the feathers *f f'*, over which and around the shafts *e e'* are the screw-sleeves *g g'*, the lower ends of which are provided with flanges, so as to form the collars *h h'*. These screw-sleeves *g g'* pass through the lower portion of the carriages *c' c²*, while the collars at the lower end of the series engage and turn in the upper portion of the carriages *c* and *c'*.

Power is applied to the vertical shafts by means of the horizontal shafts *j* and bevel-gear wheels *j'*. Power being applied to the shaft *j*, the vertical shafts *e e'* are caused to revolve, and the screw-sleeves *g g'* revolve with the shaft. The screw-sleeves *g g*, turning in the carriages *c' c'*, cause them to move upward along the shafts *e e'*, while the carriages *c c*, below the carriages *c' c'*, are held stationary by the collars *h h* on the screw-sleeves *g g*.

The screw-sleeves *g' g'* engage and turn in the lower portion of the carriages *c² c²*, while the collars at the lower portion of the screw turn in and are held by the upper part of the carriages *c' c'*. This causes the carriages *c² c²* to move upward from the carriages *c' c'*.

When the carriages *c' c'* are caused to move up along the shafts *e e'* by the screw-sleeves *g g* they carry with them the screw-sleeves *g' g'*, which fit loosely around the shaft *e e'*, but are caused to turn with the shafts by the feathers *f f'*, and the carriages *c² c²* are caused to move up along the shafts *e e'* both by the action of the screw-sleeves *g g* and *g' g'*, whereby the carriages *c² c²* are moved twice the distance along the shafts *e e'* that the carriages *c' c'* are by the same power—that is, that in the same time the carriages *c' c'* move one inch along the shafts *e e'* the carriages *c² c²* move two inches—and therefore, the carriages *c c* being stationary, there is always the same distance between the carriages *c c* and *c' c'* and the carriages *c' c'* and *c² c²*, and consequently the knives *d d' d²* are always at an equal distance from each other.

The knives *d d' d²* are fastened to the carriages on the shafts *e e'* by means of spring-bolts *k*, and the other ends of the knives are fastened to the carriages on the shaft *b* by screw-bolts *l*, whereby the knives may be kept taut, the spring-bolts *k* allowing sufficient give to prevent the knives from breaking by an unusual strain.

The frame of soap or other substance to be

cut is passed against the knives *d d' d²*, and cut thereby into bars of the required size. The size of the bars may be readily changed by turning the shaft *j*, whereby the knives are caused to approach to or separate from each other, as has already been described. But three knives and their accompanying devices have been mentioned in the description; but the number may be increased indefinitely, the construction and operation being the same as those which have been described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for cutting soap and like substances, the combination, with the cutters and two or more cutter-carriers, of screw-sleeves, each of said sleeves journaled in one carrier and working in a thread of a second carrier, and shafts to rotate the sleeves, whereby the adjustment of the cutters at equal distances apart may be accomplished, substantially as and for the purpose specified.

2. In a machine for cutting soap, said machine being provided with two or more cutters, the combination, with each cutter of the series, of two carriers having screw-sleeves *g*, shafts *e e'*, a spring-bolt, *k*, and a screw-bolt, *l*, substantially as and for the purpose specified.

In testimony whereof I, the said IRWIN M. O'DONEL, have hereunto set my hand.

IRWIN M. O'DONEL.

Witnesses:
JOHN K. SMITH,
JAMES H. PORTE.