

2 Sheets—Sheet 1.

No. 281,464.

Patented July 17, 1883..

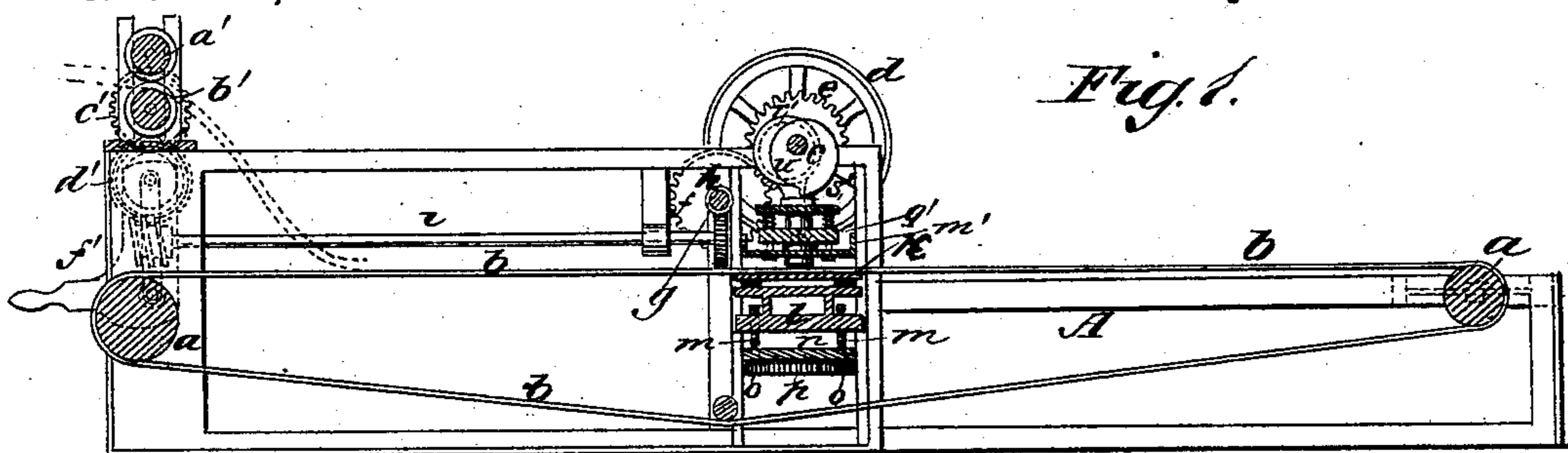


Fig. 1.

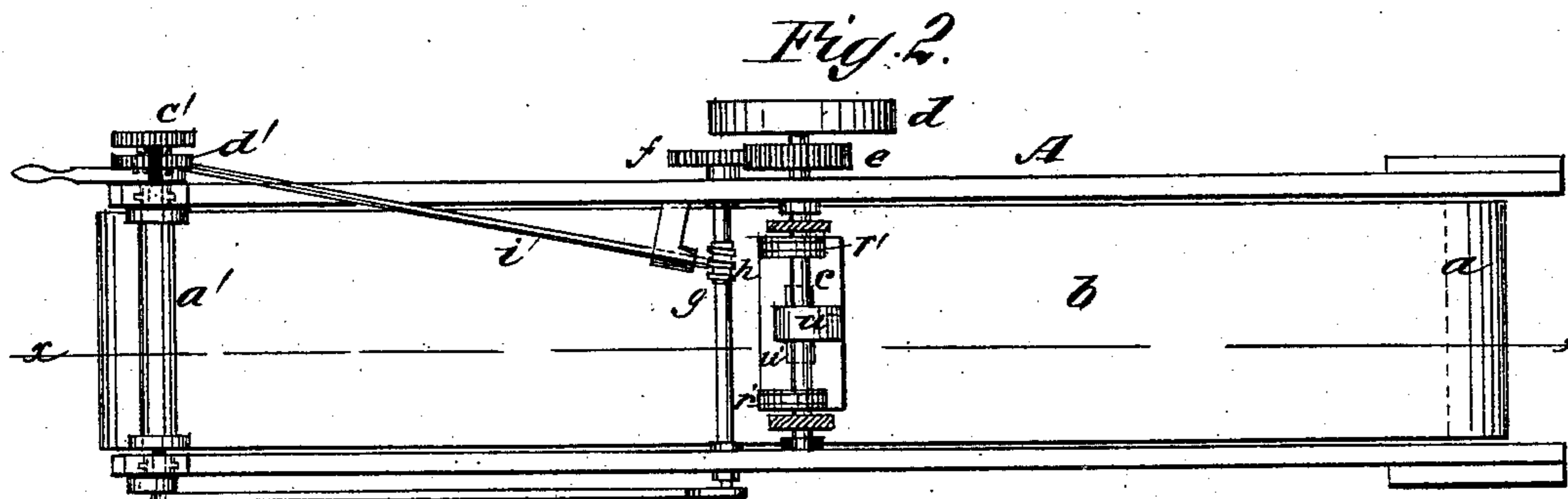


Fig. 2.

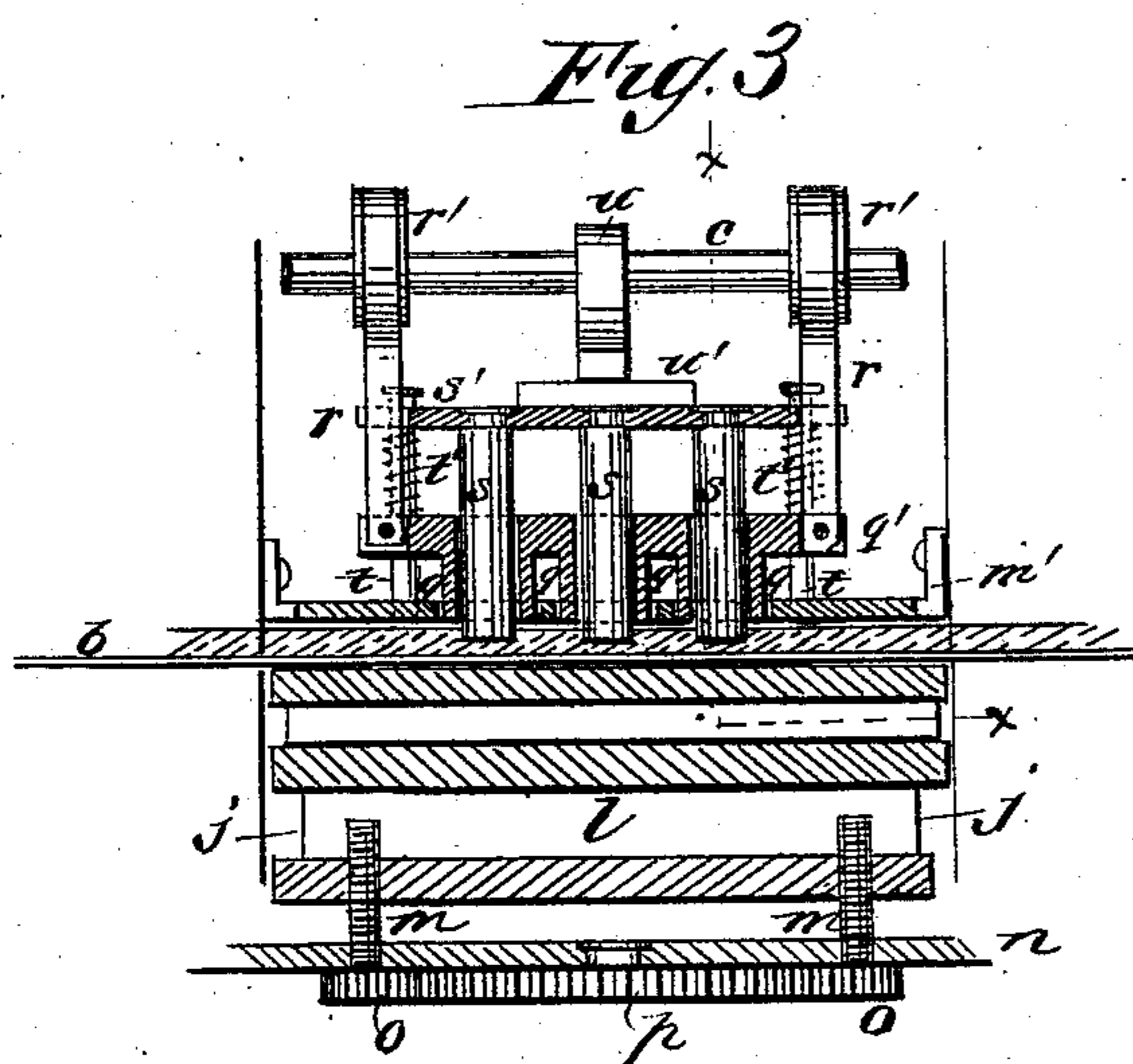


Fig. 3

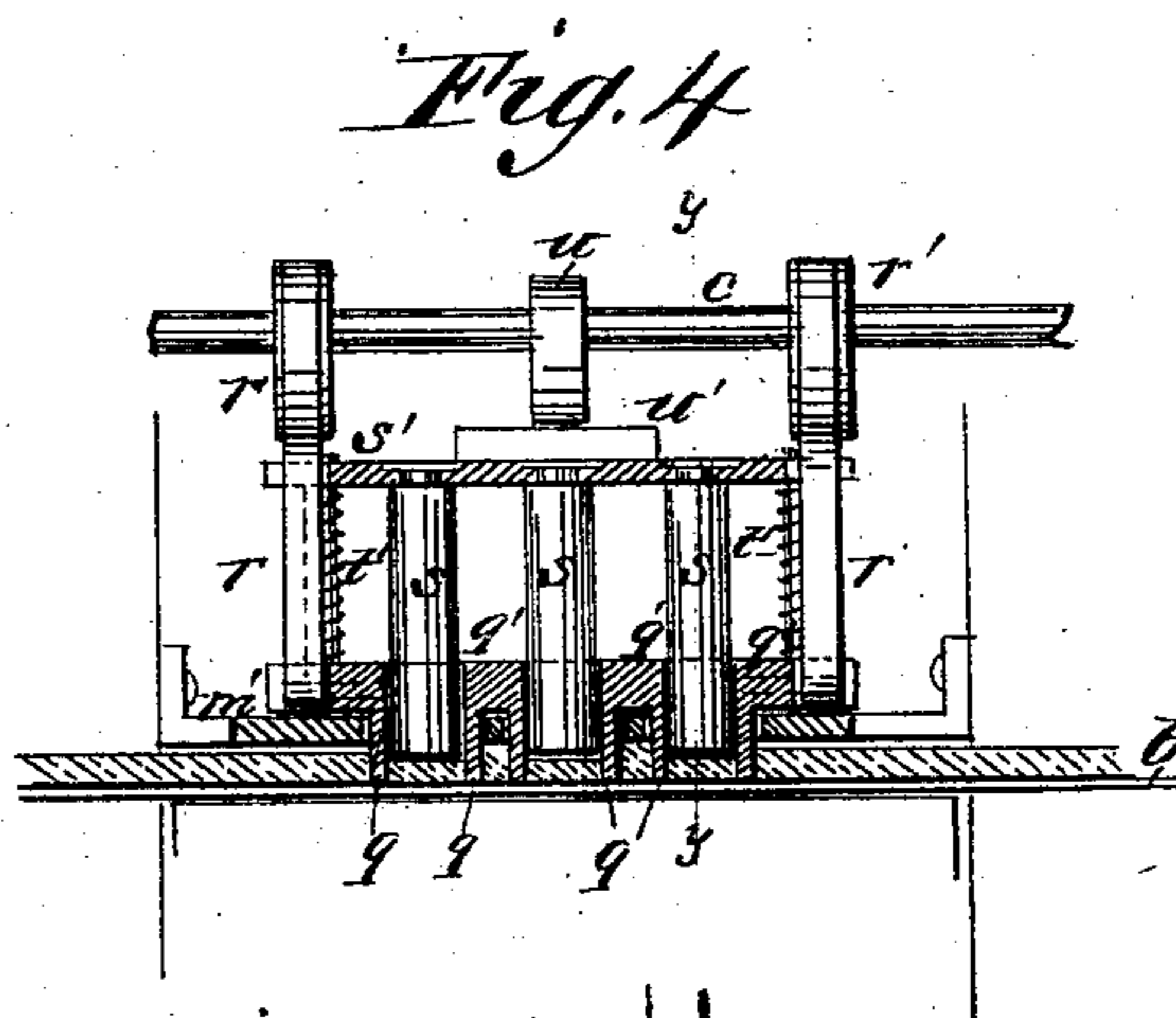


Fig. 4

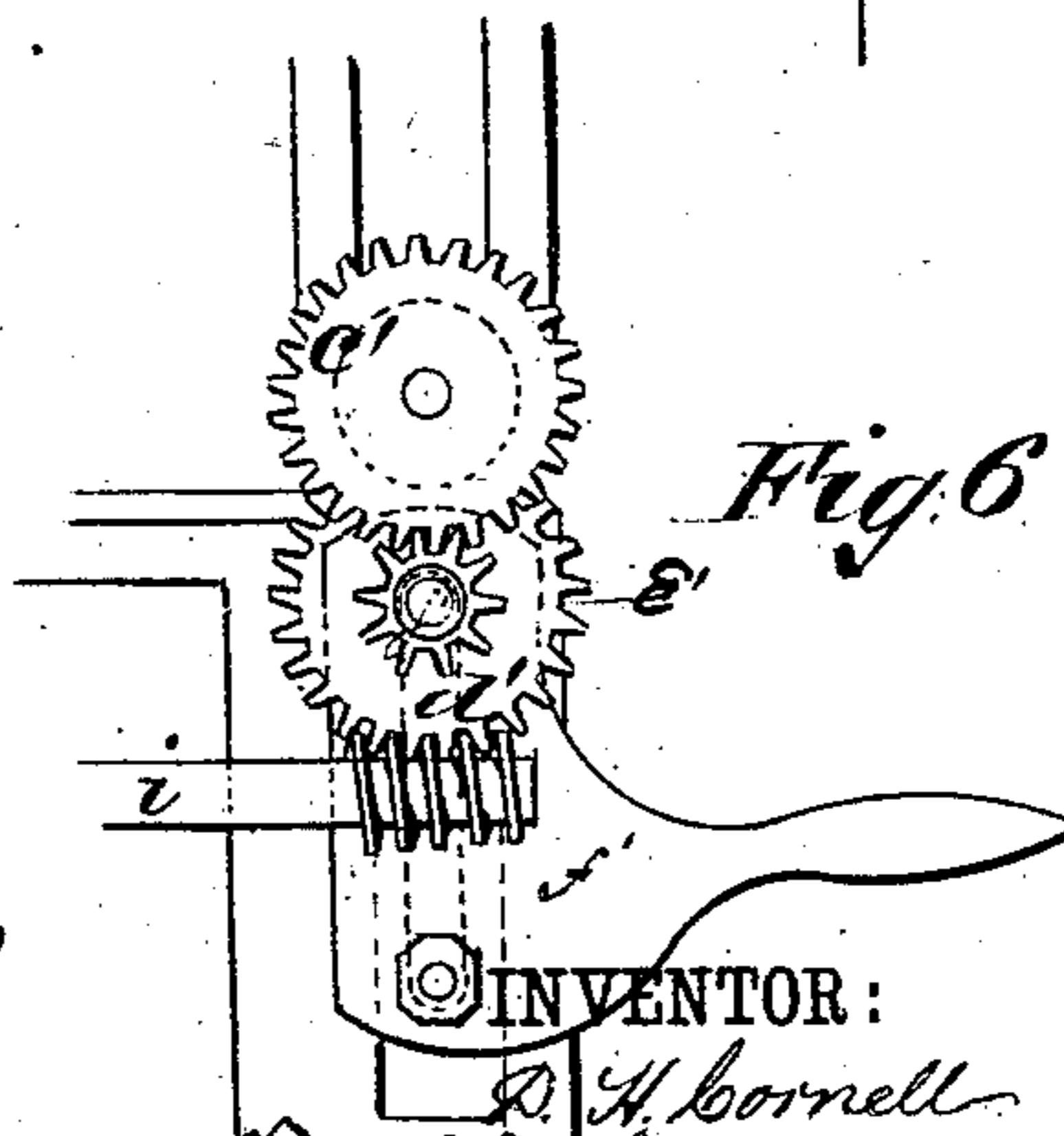
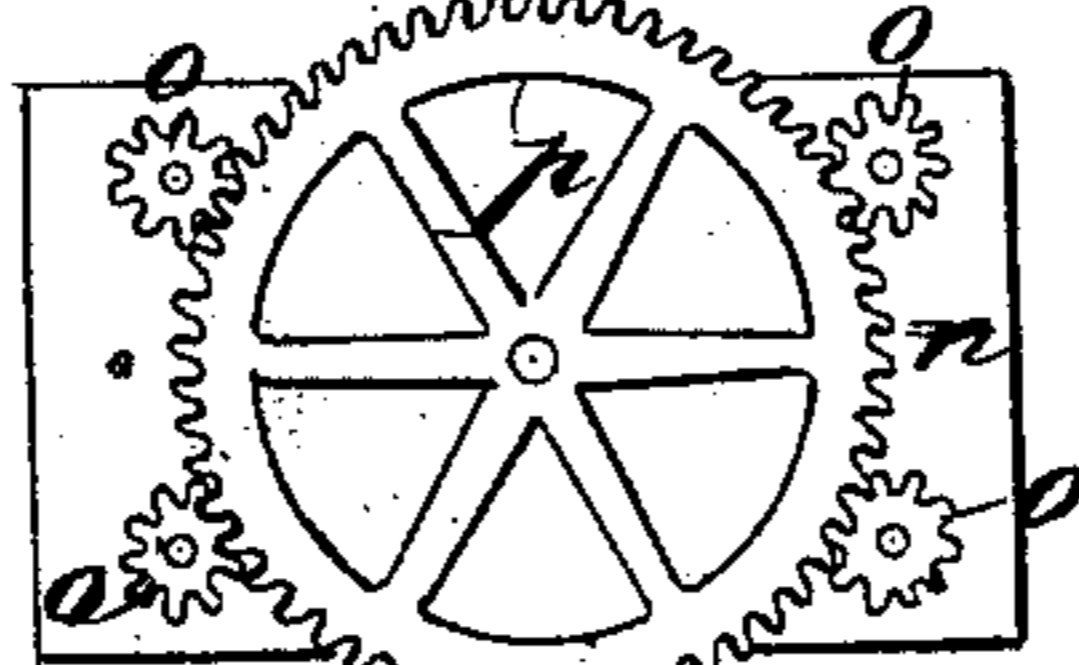


Fig. 6

WITNESSES :-

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(No Model.)

2 Sheets—Sheet 2.

D. H. CORNELL & A. SCHINCKE.
CRACKER MACHINE.

No. 281,464.

Patented July 17, 1883.

Fig. 7.

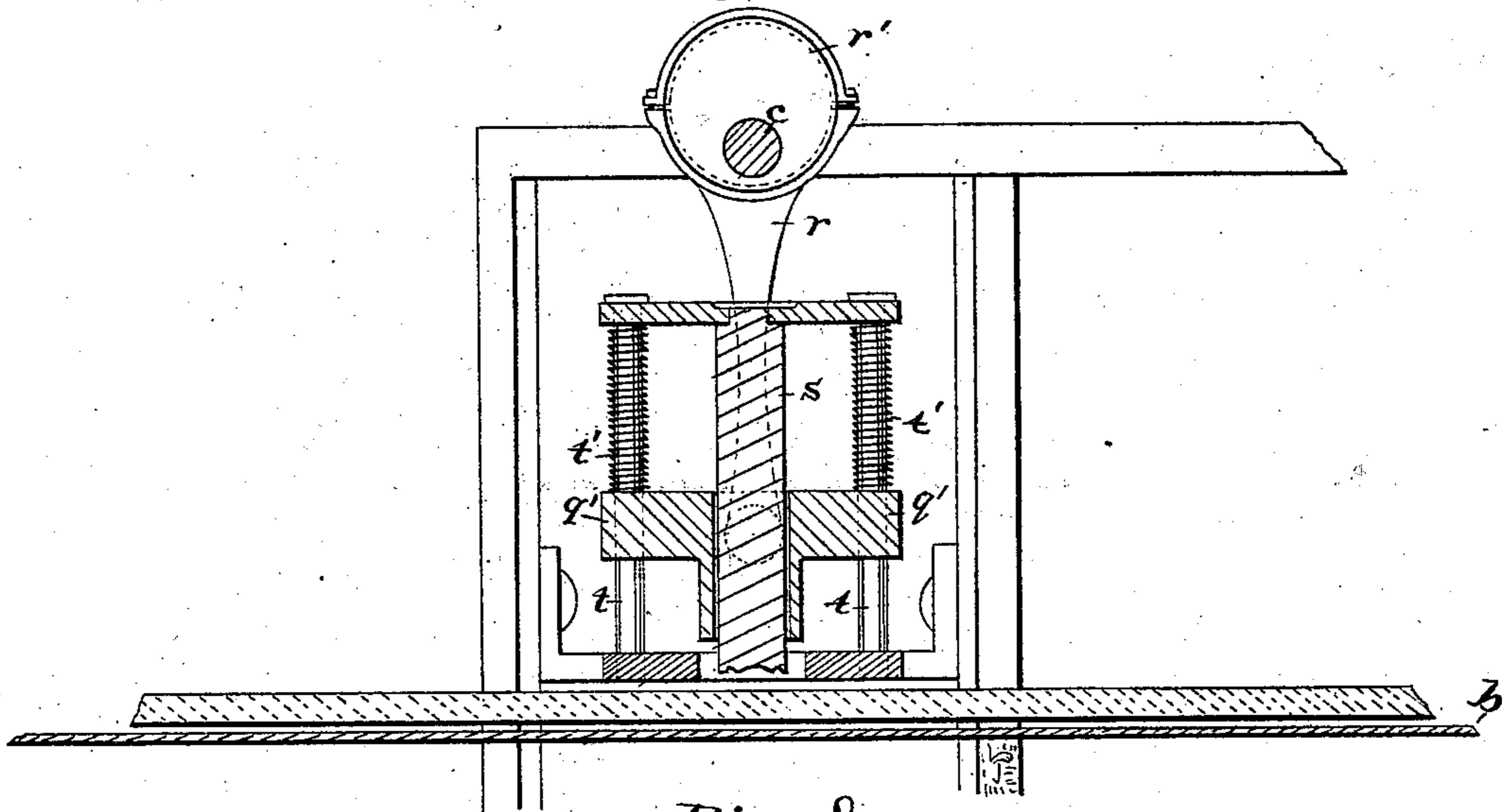
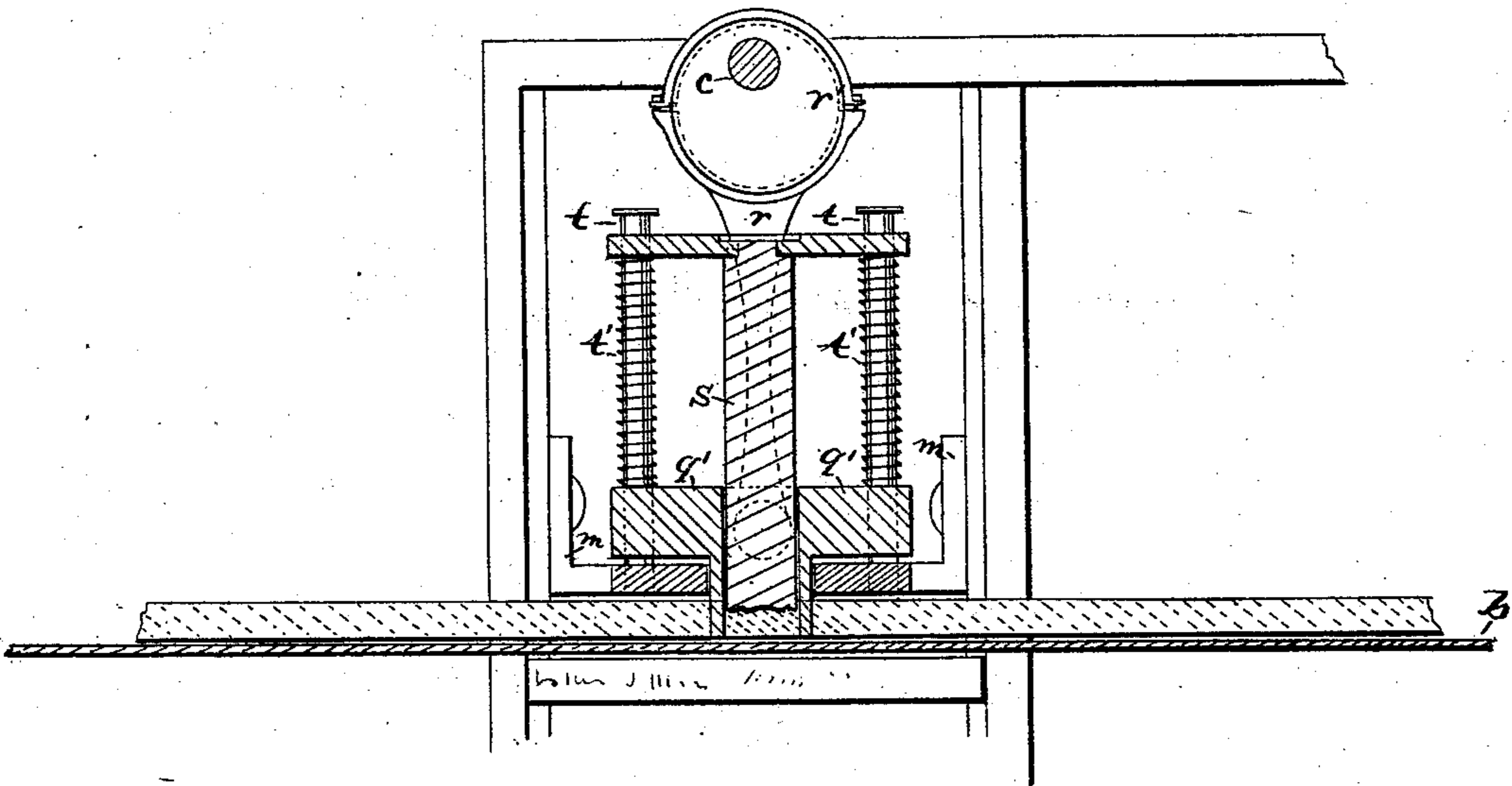


Fig. 8.



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UNITED STATES PATENT OFFICE.

DENISON H. CORNELL, OF BROOKLYN, AND AUGUST SCHINCKE, OF NEW YORK, N. Y.

CRACKER-MACHINE.

SPECIFICATION forming part of Letters Patent No. 281,464, dated July 17, 1883.

Application filed September 15, 1882. (No model.)

To all whom it may concern:

Be it known that we, DENISON H. CORNELL, of Brooklyn, in the county of Kings and State of New York, and AUGUST SCHINCKE, of the city, county, and State of New York, have invented a new and Improved Cracker-Machine, of which the following is a full, clear, and exact description.

Our improvements relate to machines used in the manufacture of fancy crackers for cutting and stamping the crackers from sheets of dough.

The object of the invention is to improve cracker-machines, as hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical longitudinal section of our improved machine. Fig. 2 is a plan view of the same. Figs. 3 and 4 are transverse sections of the stamp and cutter in large size. Fig. 5 is a face view of the mechanism for adjusting the bed, and Fig. 6 is a detail view. Fig. 7 is a vertical section on line *x x* of Fig. 3, except that the eccentric is turned so as to hold up the plunger above the dough. Fig. 8 is a vertical section on line *y y* of Fig. 4.

The frame A of the machine is of ordinary character, and is fitted at its end with rollers *a a*, around which passes the endless apron *b*. At about the mid-length of the frame is a cross-shaft, C, mounted a suitable distance above the apron, and carrying on its end a pulley, *d*, for connection with power to operate the machine. A gear-wheel, *e*, on the shaft C meshes with a gear, *f*, on a secondary shaft, *g*, which carries a worm, *h*, that engages a worm-wheel on the end of a horizontal shaft, *i*, that extends diagonally to the feed end of the machine for operation of the feed-rollers, as hereinafter set forth. Beneath the middle of the apron is a bed-plate, K, supported by rubber blocks, which in turn rest upon an adjustable bed or plate, *l*. This plate *l* is sustained by four screws, *m*, upon a fixed plate, *n*. Beneath and on the ends of the screws *m*, beneath the plate *n*, are pinions *o o o o*. (Shown most clearly in Fig. 5.)

To the under side of the plate *n* is journaled

a large gear-wheel, *p*, which meshes with the pinions *o*, so that by turning the wheel *p* the pinions and the screws *m*, to which they are connected, will be simultaneously turned for raising and lowering the plate *l* and its imposed bed K. This construction allows of the accurate adjustment of the bed K, according to the thickness of the sheets of dough, and insures the bed remaining level in any position to which it may be raised. The stamps and cutters are suspended from the shaft C, above the plate and the apron, the construction being as follows:

q q are the cutters projecting from the under side of a plate, *q'*, that is suspended and operated by metallic connecting-rods *r*, from eccentrics *r'* on the shaft C. The plate *q'* is rigidly attached at each end to the rigid straps *r*, carrying cam-yokes at the upper end, so that as the cams *r'* revolve in these yokes they may reciprocate the plate *q'*. These cutters may be of any desired shape, according to the outline of the figure to be cut in the dough.

S S are stamps formed as plungers, which pass through the cutters *q*, and are attached at their upper ends firmly to a plate, *S'*, which is supported upon the cutter-plate *q'* by spiral springs *t'* around guide-rods *t*. The cutter-plate *q'* and die-plate *S'* are connected together by the springs *t'* and rods *t*, and both slide upon said rods. The stamps of course correspond in their cross-section with the shape of the cutters, and their lower ends are engraved with the interior markings that are to be formed upon the cracker. Upon the upper side of the plate *S'* is a block, *u'*, which is acted upon by a cam, *u*, on the shaft C, which depresses the plate *S'* and stamps *S*. It will be seen that the stamps are separate from the cutters, so that they can be readily manufactured.

The feed mechanism is as follows:

a' and *b'* are the pressure-rollers, through which the dough passes to the apron *b*. On the shaft of the lower roller, *b'*, is a gear-wheel, *c'*, and beneath the roller *b'* is a worm-wheel, *d'*, journaled on a stud from frame A, carrying upon its hub a pinion, *e'*, which meshes with the wheel *c'* of the roller *b'*. The worm-wheel *d'* is engaged by a worm on the end of the shaft *i*, and being thereby rotated rotation is given

to the roller *b'* more or less rapid, according to the size of the pinion on the hub of the wheel. The intermediate wheel, *e'*, between the worm *d'* and the wheel *c'* is attached to the hub of the worm by a key or otherwise, so that the wheel *c'* can be changed to vary the speed of the feed-wheel as may be required. In order to compensate for the difference in the size of the intermediate wheels, the worm-wheel is carried by a stud fitted on the plate *f'*, that is vertically adjustable upon the end of the frame, and the end of the worm-shaft *i* is also supported by this plate *f'*, so that the worm and wheel remain in gear in any position of the plate *f'*. When a change is to be made, the plate *f'* is lowered, the intermediate pinion removed, a new one put in place, and the plate *f'* then raised to engage the intermediate pinion with the gear-wheel *c'*.

In the operation of the machine, power being applied to the shaft C, the feed-wheels are set in motion, and a sheet of dough, passing upon the apron *b*, is carried beneath the stamps and cutters. In the cutting and stamping operation the cam *u* acts first to press down the plate *S'* and stamps *S* to the position shown in Fig. 3, thereby pressing the sheet of dough. As soon as the stamps reach their extreme downward position the eccentrics *r'* press the plate *q'* downward, and the cutters are carried down through the sheet of dough, as shown in Fig. 4. At the same time the plate *S'*, having been released by the cam *u*, is raised by the action of the springs *v'*. The eccentrics *r'* then raise the cutters clear of the sheet, and the stamped and cut dough is carried out from beneath by the apron

b. The fixed plate *m'*, which is apertured for the cutters to pass through, serves to clear the sheet of dough from the cutters and prevents its rising. The advantage of compressing the dough before cutting it is that the crackers are thereby made of uniform diameter and appearance, which cannot be done where they are first cut out and then compressed. The operation is then repeated as before. With this machine fancy crackers of any form can be cut out with great rapidity, and the machine is much less expensive in construction than those heretofore employed.

We are aware that it is not new to adjust an elastic bed-plate vertically by a screw and socket or by inclined bars and cross-heads; but

What we do claim as new and of our invention is—

1. In a cracker-machine, the separate and spring-connected cutter and stamp plates *q'* *S'*, in combination with a rotary shaft carrying cams *r' u r'*, the end cams, *r'*, being connected by the rigid yoke-straps *r* with the cutter-plates *q'*, whereby the cams will operate said plates at the times and in the manner specified.

2. The combination, with the feed-roller gear *c' d' e'* and the shaft *i*, of the adjustable plate *f'*, having a stud carrying the worm-wheel and supporting the shaft *i*, whereby the feed may be regulated, as described.

DENISON H. CORNELL.
AUGUST SCHINCKE.

Witnesses:

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C. SEDGWICK.