

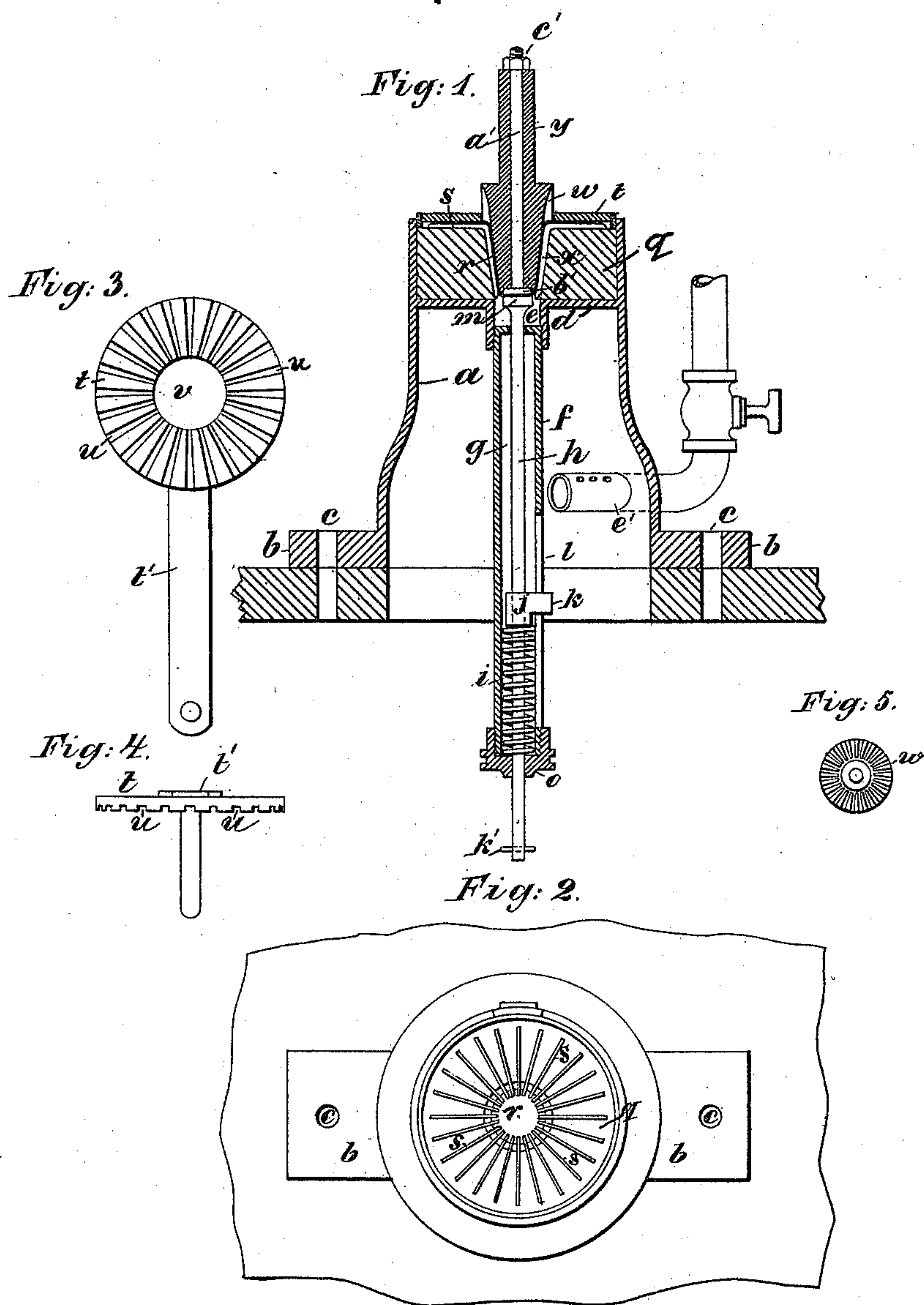
(No Model.)

J. LACKNER.

MACHINE FOR MAKING PLAITED PAPER CAPS, CAPSULES, &c.

No. 470,335.

Patented Mar. 8, 1892.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOHN LACKNER, OF NEW YORK, N. Y.

## MACHINE FOR MAKING PLAITED PAPER CAPS, CAPSULES, &c.

SPECIFICATION forming part of Letters Patent No. 470,335, dated March 8, 1892.

Application filed March 28, 1890. Serial No. 345,761. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN LACKNER, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain Improvements in Machines for Making Plaited Paper Caps, Capsules, &c., of which the following is a specification.

My invention relates to the class of machines employed for making plaited caps of paper for containing fruit, cakes, confectionery, and the like where a holder can be used, and also for making paper capsules for bottles; and the object is to provide a simple machine whereby the cap or capsule may be formed and plaited at one operation.

The invention will be fully described hereinafter and its novel features carefully defined in the claim.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a vertical mid-section of a machine embodying my improvements, the parts being represented in working position. Fig. 2 is a plan view of the apparatus with the male die and upper compressing-disk removed. Fig. 3 is an under side plan view of the compressing-disk, and Fig. 4 is an edge view of the same. Fig. 5 is an end view of the male die as seen detached.

Let *a* represent the body or frame of the machine, here shown as having the form of a hollow truncated cone and provided with attaching-lugs *b*, with holes *c* to receive bolts or screws for fastening the frame down to the bed of a press or table.

Within the upper part of the hollow frame is fixed a plate or bearing-piece *d*, having a centrally-arranged nipple *e*. In this nipple is secured the upper end of a tubular stem *f*, and within the hollow *g* of this stem is arranged a rod *h*, which extends upwardly through an aperture in the closed end of the stem *f*. On the lower end of the stem is an apertured screw-cap *o*, through which the rod *h* also plays, and within the stem *f* is a coil-spring *i*, which embraces the rod *h* and is embraced endwise between the cap *o* and a collar *j*, fixed on the rod *h*. This collar has a lug *k*, which plays in a limiting-slot *l* in the stem *f*. On the upper end of the rod *h* is a head *m*.

Resting removably on the support *d* and fitting into the upper part of the frame *a* is the lower or female die *q*. (Seen in plan in

Fig. 2.) This die has in it a conical or tapered hole or recess *r*, up through which the rod *h* projects normally, being upheld or pressed upward by the spring *i*. The head *m*, however, will not project above the upper surface of the die *q*. On the surface of this die are radial ribs *s*, (see Fig. 2,) which continue or extend down along the inner faces of the tapered hole *r*.

*t* is the compression disk or ring. This disk (seen detached in Figs. 3 and 4) has an aperture *v* at its center and radial grooves *u*, which match the ribs *s* on the die *q* when the disk is placed face down on the same, as in Fig. 1. This disk may have a handle *t'*, if desired.

*w* is the male die, which is tapered to fit into the tapered hole *r* in the female die and has grooves in its face which match the ribs in the said hole of the female die. This die *w* has a shank *y* and a longitudinal bore in it to receive a rod *a*, which may have on its lower end a head or plate *b'*, on which may be engraved a monogram to be impressed or embossed on the paper cap. The rod *a'* is held in place by a nut *c'* at its upper end, and it may be readily removed and replaced by another at will.

In operating the machine the blank of paper or like thin material which is to be formed into a cup is laid on the face of the die *q*, and the compression-disk *t* is laid upon it and held down by a slight pressure. The male die *w* is now placed and forced gently down into the aperture or recess in the die *q*, which serves to force the paper down with it, plaiting or crimping the surface of the same uniformly at the points where the ribs on one die engage the grooves in the other. The outer margin of the blank is turned down, held, and plaited between the disk *t* and the upper surface of the die *q*. When the die *w* has been pressed down as far as the stop of the rod *h* will permit and the pressure is removed, the spring *i* and rod *h* will drive the die *w* upward out of the die *q*, and with it the paper cup. The rod *h* and spring *i* form a spring-lifter for the die *w*. Of course it will be understood that dies of different sizes and forms may be used; but the principle of construction and operation will be the same in all cases.

To render the operation more expeditious, I apply a certain amount of heat during the plaiting of the paper, and this is accomplished by inserting a perforated pipe *e'* into the hollow of the frame *a*, through which the heat may enter the frame or casing. The heat will serve to dry the paper and fix the plaits therein, thus enabling the operator to remove the plaited cap as soon as it shall have been formed.

In lieu of the lug *k* and limiting-slot *l*, the end of the rod *h* where it projects beyond the cap *o* may be furnished with a cross-pin *k'*, as seen in Fig. 1, to serve the same purpose.

Having thus described my invention, I claim—

In a machine for forming and plaiting pa-

per caps, the combination of the frame *a*, the female die *q*, having a radially-ribbed upper surface and a ribbed aperture or recess *r*, the compression-disk *t*, provided with radial grooves *u* on its face, the tubular stem *f*, aligned with the recess in the female die and provided with a limiting-slot *l*, the rod *h* in said stem provided with the collar *j*, having a lug *k*, the spring *i*, arranged in the stem *f* under the collar *j*, and the grooved male die *w*, all arranged to operate substantially as set forth.

JOHN LACKNER.

Witnesses:

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