

(No Model.)

P. J. KNAPP.
CLOTHES POUNDER.

No. 245,384.

Patented Aug. 9, 1881.

Fig. 1.

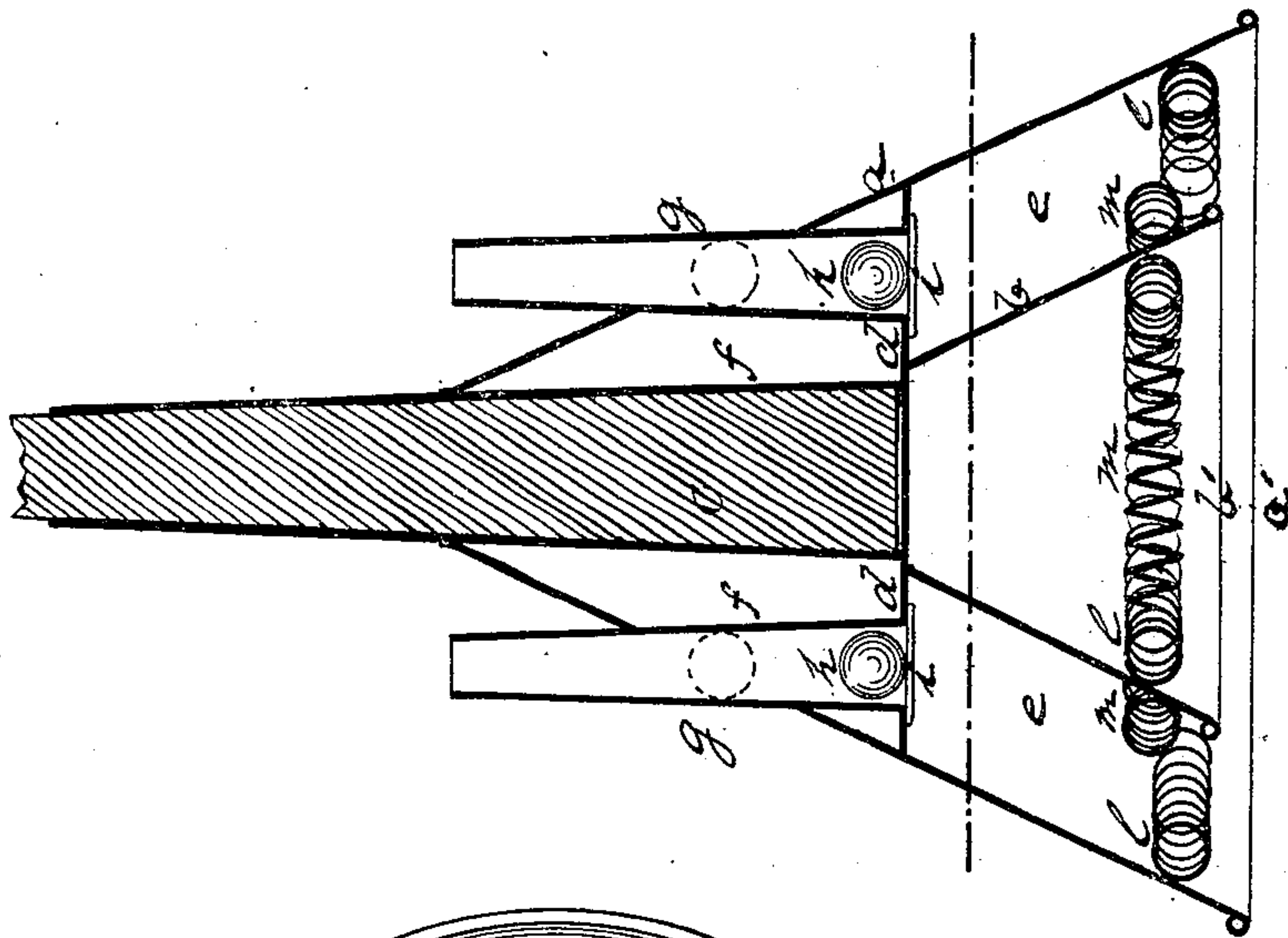


Fig. 2.

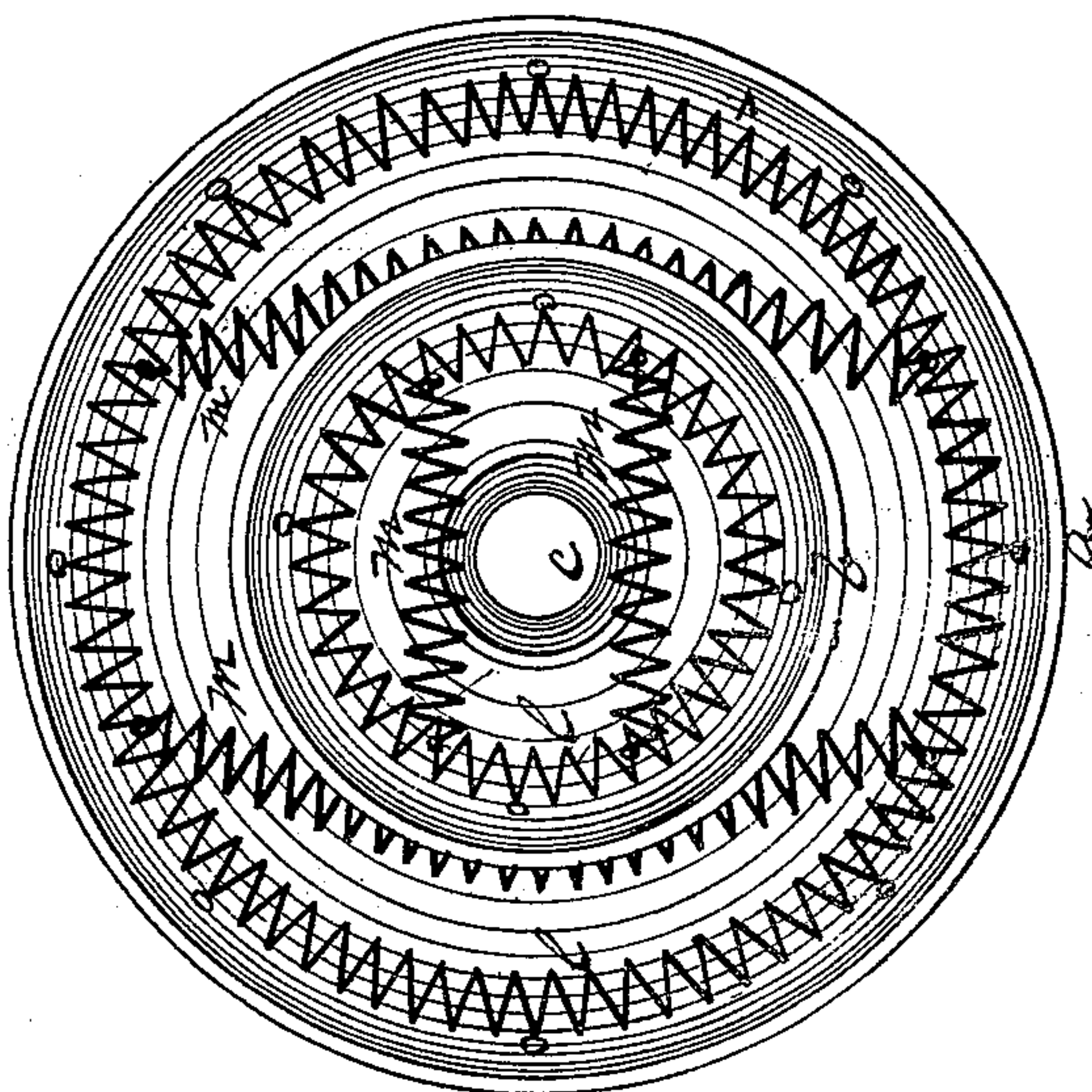
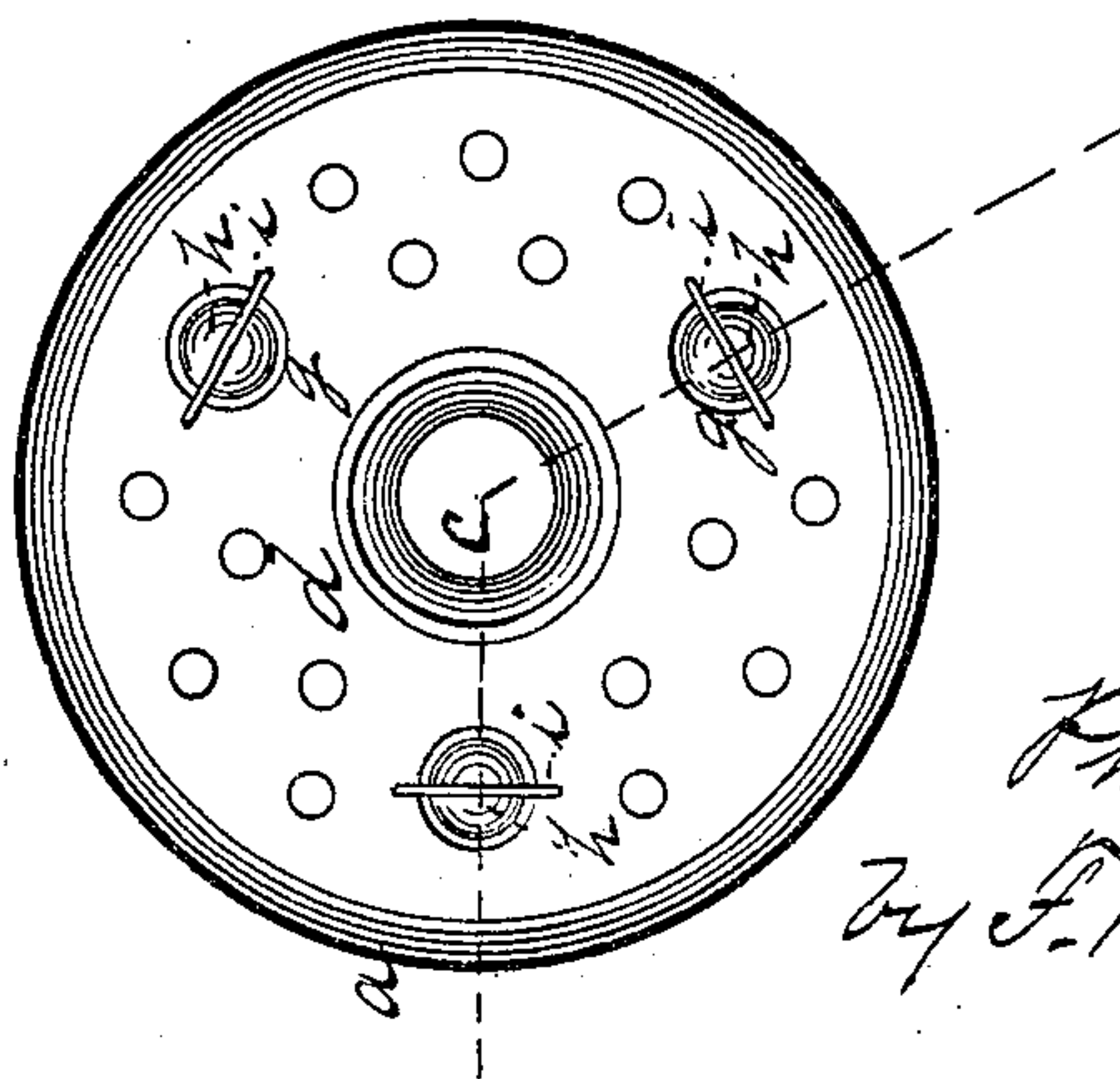


Fig. 3.



Witnesses:

Geo. W. Ward.
 & B. Moulton -

Inventor:

Philip J. Knapp
by F. W. Retter Jr
att'y

UNITED STATES PATENT OFFICE.

PHILIP J. KNAPP, OF COAL CITY, INDIANA.

CLOTHES-POUNDER.

SPECIFICATION forming part of Letters Patent No. 245,384, dated August 9, 1881.

Application filed June 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, PHILIP J. KNAPP, a citizen, of the United States, residing at Coal City, in the county of Owen and State of Indiana, have invented certain new and useful Improvements in Clothes-Pounders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical section of devices embodying my invention. Fig. 2 is a bottom view of the same; and Fig. 3 is a similar view, the inner funnel and spiral springs having been removed so as to fully show the perforated diaphragm.

Like letters refer to like parts wherever they occur.

My invention relates to that class of clothes-pounders wherein the water, suds, &c., are forced through the clothes by the compression of the air in the concavity of the pounder; and it consists, mainly, in the combination of an imperforate inner funnel with an outer funnel divided into two compartments by a perforated diaphragm, whereby a residual air-chamber is formed in the upper part of the outer cone or funnel; secondarily, in specific combinations of relief-valves with the outer funnel and its air-chambers; and, finally, in the specific combination of spiral springs with the bases of the funnels, all as will hereinafter more fully appear.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawings, *a b* indicate two hollow cones or funnels, arranged concentrically and attached to the socket *c*, which opens below into the inner or smaller funnel, *b*. The socket *c* is preferably tapered from below upward, and is open below, so that a wooden handle, with corresponding taper, can be inserted through the inner funnel. The swelling of the wood on becoming wet will effectually close the end of the inner funnel, *b*, and secure the parts so that other fastenings may be dispensed with, and at the same time the connection will be such as to permit the ready removal of the handle when it is desirable to do so. This inner funnel, *b*, does not communi-

cate with the residual air-chamber *f*, and when the handle is in, the pounder is closed except at the bottom.

d indicates a perforated annular diaphragm arranged within the outer funnel and surrounding the socket *c* or apex of the inner funnel, so as to divide the outer funnel into a lower chamber, *e*, and an upper or air chamber, *f*. The perforations in the diaphragm *d* are quite small, so that when the pounder is in use they will be more or less occluded by the bubbles forming on the diaphragm, and thus, in a measure, retard the escape of the residual air, which during the operation of the device becomes compressed within the air-chamber *f*, while at the same time the diaphragm practically limits the rise of the water.

Extending up from the diaphragm *d* are a series of tubes or pipes, *g*, which traverse the air-chamber *f* and project through the outer funnel, *a*, thus establishing communication between the outer air and the chamber *e* or under side of the perforated diaphragm.

The tubes *g* are provided with valves *h*, which open inward, and said valves should be of sufficient heft to fall by their own weight. The preferable construction will be found to be that which is shown—that is to say, the tubes *g* tapering from below upward, and a ball-valve of less diameter than the base of the tube, the latter retained in place by a bar, *i*.

The bases of the two funnels *a* and *b* are guarded and partially closed by a series of spiral springs, *l m*, arranged horizontally in circles and transversely, and connected at intervals to the funnels, as shown, so that the plane of the springs remains virtually the same throughout, though they are enabled to yield slightly at given points. The spiral springs thus arranged have a special value—that is to say, they not only prevent the clothes from being drawn into the funnel, as partitions, flat springs, and like devices do, but they present little or no obstruction to the passage of the water, and work the clothes with an elastic, kneading, or spring action, similar to the rubbing pressure given by the fingers in hand labor.

The device, being constructed substantially as specified, will operate as follows: The clothes having been placed in a tub, barrel, or similar

receptacle, together with a moderate amount of water, suds, &c., the pounder is used in the ordinary manner to beat or pound the clothes. The perforated diaphragm *d* will prevent the
 5 rise of the water into the air-chamber *f*, and as the air-chamber will contain compressed air at the end of the downstroke of the pounder, there will be an elastic medium to assist the operator in lifting the pounder. As soon as the
 10 pounder commences to rise the valves *h* will fall, opening tubes *g* and permitting an inflow of air to chamber *e* below the diaphragm, which will prevent the sucking in or lifting of the clothes. As the perforations in the diaphragm are small,
 15 they will be, in a measure, closed by the bubbles forming on the diaphragm, which will retard the escape of the residual air.

The cone shape of the cavities causes the force of the compressed air to be exerted uni-
 20 formly in driving the fluids from the center toward the circumference of the pounder.

I am aware that a centrally-arranged coiled spring and a series of spiral springs connected thereto and radiating therefrom have been
 25 combined with a hollow cone or funnel, and do not herein claim the same, for the reason that the springs in such case are free to act throughout their entire length, and cannot therefore knead the clothes, as herein speci-
 30 fied.

I am also aware that two funnels of different size have been heretofore arranged concentrically with the base of the inner funnel above that of the outer, and do not broadly claim the
 35 same; but,

Having thus set forth the nature and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a clothes-pounder, the combination of two concentrically-arranged hollow cones 40 or funnels and a series of spiral springs, arranged horizontally across the bases of the cones and connected thereto at intervals within the length of the springs, to limit spring-action, substantially in the manner and for the 45 purpose specified.

2. In a clothes-pounder, the combination of two concentrically-arranged imperforate hollow cones or funnels, open only at the base, and a perforated annular diaphragm arranged 50 in the space between the funnels to divide the same into two chambers, substantially as and for the purpose specified.

3. In a clothes-pounder, the combination of two concentrically-arranged hollow cones 55 or funnels, a perforated annular diaphragm arranged in the space between the funnels to divide the same into an upper and lower chamber, and one or more valved induction-ports, which communicate with the space between 60 the funnels and below the diaphragm, substantially as and for the purpose specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 30th day of June, 1881.

PHILIP J. KNAPP.

Witnesses:

F. W. RITTER, Jr.,
 H. B. MOULTON.