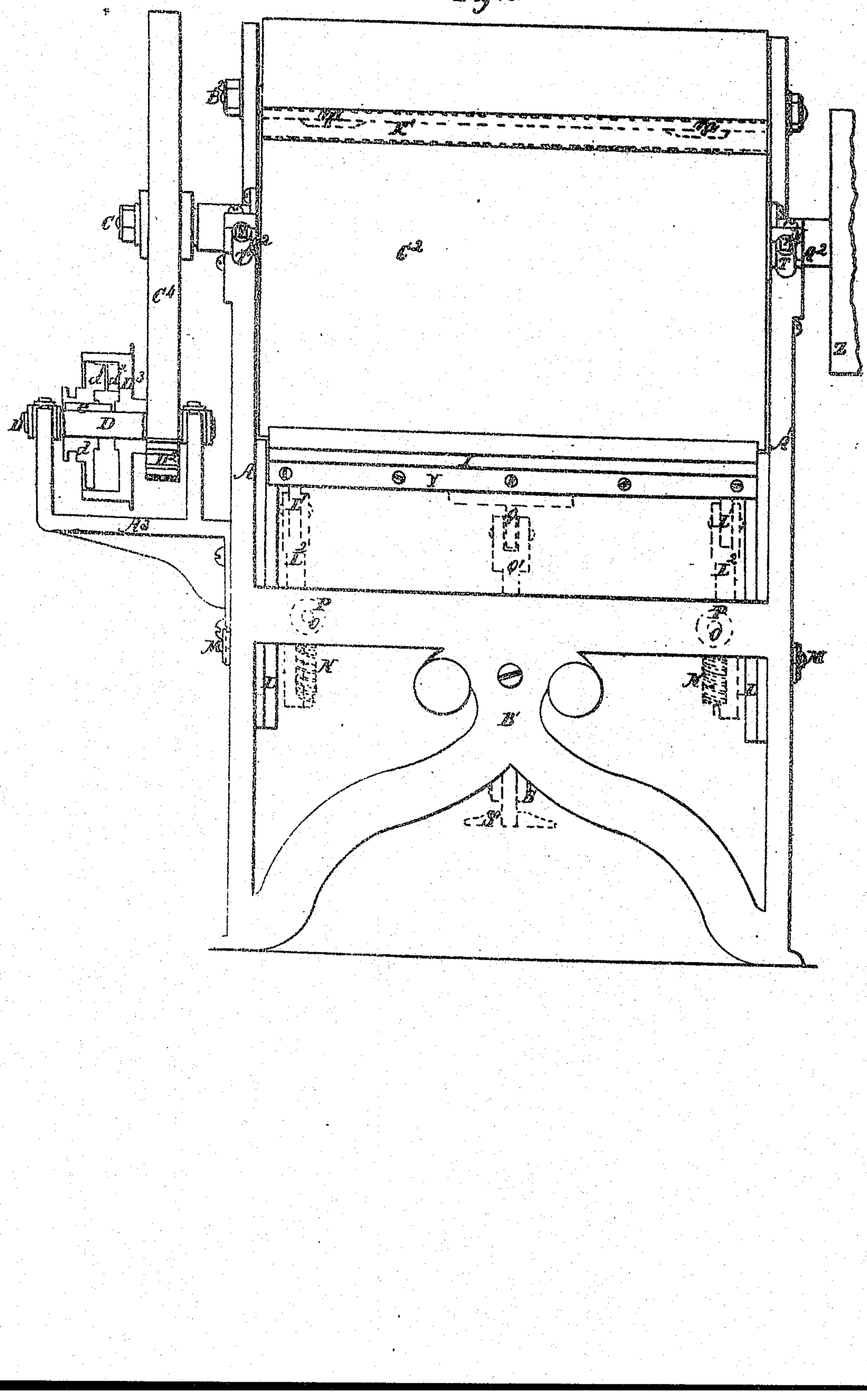
No. 8,240. PATENTED JULY 22, 1851.

D. R. AMBROSE & O. L. REYNOLDS.

MACHINE TO MEASURE AND FOLD CLOTH, &c.

2 SHEETS—SHEET 2.

Fig. 2.



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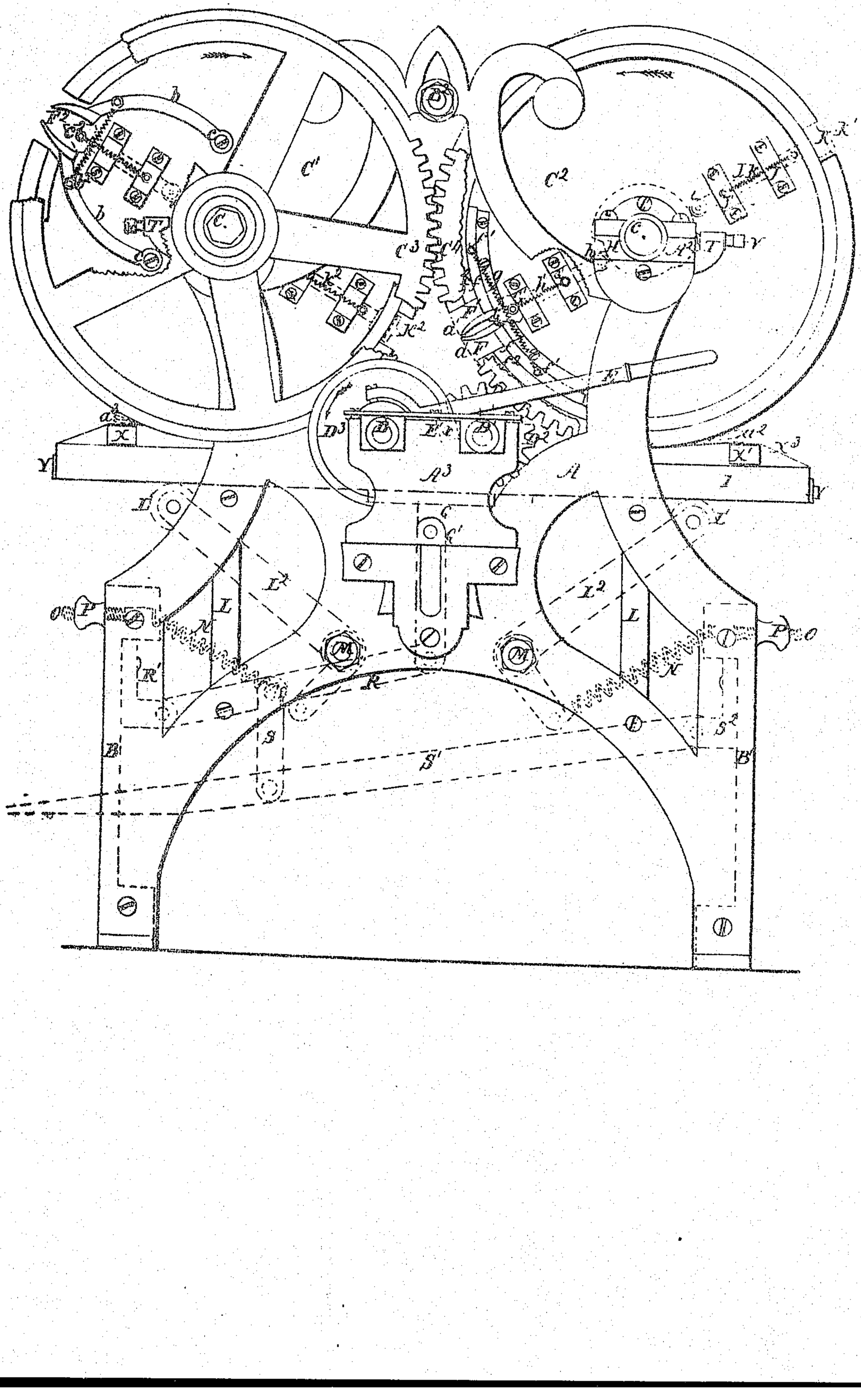
2 SHEETS—SHEET 1.

Fig. 1.



UNITED STATES PATENT OFFICE.

D. R. AMBROSE, OF PORTSMOUTH, AND O. L. REYNOLDS, OF DOVER, NEW HAMPSHIRE.

CLOTH-FOLDING MACHINE.

Specification of Letters Patent No. 8,240, dated July 22, 1851.

To all whom it may concern:

Be it known that we, D. R. AMBROSE, of Portsmouth, in the county of Rockingham and State of New Hampshire, and O. L. REYNOLDS, of Dover, in the county of Strafford and State aforesaid, have invented a new and useful machine for Measuring and Folding Cloth, Paper, and other Articles; and we do hereby declare that the same is described and represented in the following specification and accompanying drawings, of which,—

Figure 1, is an elevation of one side; and, Fig. 2, is an elevation of one end.

Similar letters of reference refer to like parts in each of the drawings.

The nature of our invention consists in a machine with two cylinders geared together, with a rib and jaws in each; so arranged and operated as to draw the cloth from the roll or pile, and measure it by the cylinders aided by the jaws which lay the folds; which jaws close and seize the cloth when it is carried in between them by a tongue upon the rib which is slid out of the opposite cylinder at the proper time by stationary cams; which also force the wedges between the jaws and open them; so that the tongue of the rib may carry the cloth in between them; when the wedges are withdrawn by springs, so that the jaws are closed upon the cloth by springs, as the tongue is withdrawn by other springs and the jaws carry the cloth folded and lay it upon a selfadjusting table which is placed under the cylinders to receive it. When the jaws with the fold of cloth arrive at the proper place the cams force the wedges between the jaws and open them releasing the cloth and leaving it properly folded upon the table.

To enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation.

A A′ the sides of the frame; B B′, ends fastened to the sides, which are also connected together at the top by the rod B^2. Fastened to the sides are the boxes A^2 A^2 in which the shafts C C of the cylinders C′ C^2 revolve, being geared together by the wheels C^3 and C^4, which wheels gear into two other wheels upon the shafts D, D′ which turn in boxes in the stand A^3 fastened to the side A. One of these wheels is shown at D^2 the other is obscured by the driving pulley D^3 which turns freely upon the shaft D, when the sliding clutch *d* is in the position represented in the drawing. The clutch *d* slides freely upon the shaft and turns the shaft by the feather *e* (fastened to the shaft D) which fits a groove in the clutch *d;* so that when the clutch is shoved into the pulley D^3 the projection *d′* upon the clutch is caught by the projection d^2 upon the pulley, it turns the shaft operating the machine. The clutch *d* is operated by the lever E which vibrates upon a pivot of the stand E′, shown by dotted lines, fastened to the stand A^3.

There is only a small portion of the wheel C^4 represented having been omitted to show the side A and the end of the cylinder C^2; which has a space through its whole length at F in which the jaws F′ vibrate being supported by the curved slides *f f* which traverse between the cleats *f′ f′* fastened to the head of the cylinder and the rim f^2 f^2 of the head. The jaws F′ are opened by the wedge G the shank of which traverses in the cleats G′ G′ fastened to the head of the cylinder, and are closed by the spring *g*, fastened to the slides *f f*. The wedge G is pushed in between the jaws by the stationary cam H (fastened to the box A^2) which acts against the roller *h* in the end of the shank, and is drawn back by the spring *h′* fastened to the wedge G and to the cleat G′. The cam H also acts against the roller *i* in the slide J which traverses in the cleats J′ J′ fastened to the head of the cylinder, and pushes out the rib K with the tongue K′ and is drawn back by the spring *k*, fastened to the slide J and the cleat J′. The wedge G, stationary cam H, rollers *h* and *i*, slide J, rib K and tongue K′ are represented by red lines. The jaws F′, rib K and tongue K′ extend the whole length of the cylinder and are connected to and operated by an apparatus at the opposite end, similar to the one just described. The cylinder C′ is made in every respect similar to C^2.

Under the cylinders C′ C^2 there is a self adjusting table I with notches in the edges that fit the guides L L fastened to the sides A A′ upon which it traverses and is supported by the rollers L′ L′ in the bent levers L^2 L^2 which vibrate upon the studs M M fastened in the sides A A′. Fastened to the short arm of the levers L^2 L^2 are the springs N N which are also fastened to the screws O O which pass through the ends B B′ and are held by the nuts P P by which the pressure of the table against the cylinders is adjusted. The levers, springs, etc., which

operate the table are represented by red lines.

Fastened to the underside of the table I there is an eye Q attached to the connecting rod Q′, which connects it to the lever R, which has its fulcrum in the stand R′ fastened to the end B. Fastened to the lever R there is a connecting rod S which connects it to the lever S′ which has a fulcrum in the stand S^2 fastened to the end B′. The opposite end of the lever S′ projects beyond the end B so as to be depressed with facility.

The projections T T upon the sides A A′ are perforated by the screws V V, which act against the boxes A^2 A^2, to crowd the cylinders C′ C^2 together so as to press the cloth. There are two bars X X′ laid across the table I over which a piece of cloth X^3 is stretched and fastened to the ends of the table by the cleats Y Y. The pulley Z is designed to carry a belt to unroll the cloth to supply the machine.

Operation.—The machine being constructed as above described; the cylinder C′ must be set so that the tongue K^2 will enter and carry the cloth between the jaws F′ in the cylinder C^2 when they are opened by the wedge G pushed in between them by the stationary cam H. After the tongue K^2 carries the cloth in between the jaws F′, as the cylinders continue to turn in the direction of the arrows, (the machine being operated by a belt upon the pulley D^3,) as the jaws F′ descend the roller *h* passes off of the high part of the cam H and the spring *h′* draws back the wedge G, and allows the jaws F′, to close upon the cloth (by the action of the spring *g*) as the tongue K^2 is withdrawn by the spring k^2 as the roller passes off of the high part of the cam, which operates the wedge and slide of the cylinder G′: and the cloth is held by the jaws as represented by the red lines *a′ a′* until it is carried over the bar X′—when the stationary cam H forces the wedge G between the jaws and opens them releasing the cloth and leaving it folded as at a^2. As the tongue K′ passes around it carries the cloth into the jaws F^2 of the cylinder C′ which seizes the cloth in the manner described for F′ and carries it, and leaves it folded over the bar X at a^3.

If the operation of the machine is continued as above described and supplied with cloth it will measure and fold the cloth and lay it upon the table which will be depressed by the cloth as it is piled between the cylinders and the table; the springs N N yielding so as accommodate the table to the quantity of cloth between the table and the cylinders.

When the proper quantity of cloth has accumulated upon the table the operator may depress it by applying his foot to the lever S′ and remove the cloth with facility.

There are two hooks *m m* in one of the tongues upon which the end of the cloth may be hitched to commence operating; or the end of the cloth may be dropped in between the cylinders.

We contemplate that the jaws which seize the cloth instead of being fastened to the slides *f f* as represented in the cylinder C^2 may be fastened to sweeps such as are represented in the cylinder G′ at *b b*, the ends of which are fastened to the head of the cylinder by the screws *c c* upon which they vibrate, as the jaws are opened by the wedge c^2 and closed by the spring b^2. We also contemplate that one vibrating jaw may be used to act against a permanent jaw, and seize the cloth from a tongue adjusted with a spring, so as to yield in the direction of the periphery of the cylinder or otherwise, and accommodate itself to the permanent and vibrating jaws when it delivers the cloth. Also that permanent tongues may be used instead of those that vibrate, and rounded so as not to scrape the cloth as they pass over what lays upon the table and that the length of the folds of cloth may be varied by the distance the tongues project above the periphery of the cylinder; if permanent tongues are used; and when vibrating tongues are used that slide in and out; that the length of the folds of cloth may be varied by the distance the tongue slides in between the jaws. The distance the tongues slide may be varied by the cams used, or in some convenient mode.

We also contemplate using our machines to measure and fold paper and other articles; and that cloth, paper or leather may be applied to the cylinders to vary the length measured at one revolution of the same. Also that the table may be pressed up against or toward the cylinders, by weights attached to the levers instead of springs; or that springs may be applied to act directly under the table; or that cords may be fastened to the table and passed over pulleys and attached to weights so as to effect the same purpose.

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

The measuring and folding of cloth, paper and other articles, by means of two revolving cylinders each of which is provided with a tongue and jaws; the tongue to feed the cloth into the jaws which seize it and form the fold and deliver it upon the table; leaving it properly measured and folded.

In testimony whereof we have hereunto signed our names, in the presence of two subscribing witnesses.

D. R. AMBROSE.
O. L. REYNOLDS.

Witnesses:
A. R. H. FERNALD,
WILLIAM STEARNS.