

1,057,914.

G. L. BALLARD.
CLOTH CUTTER.
APPLICATION FILED APR. 28, 1911.

Patented Apr. 1, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

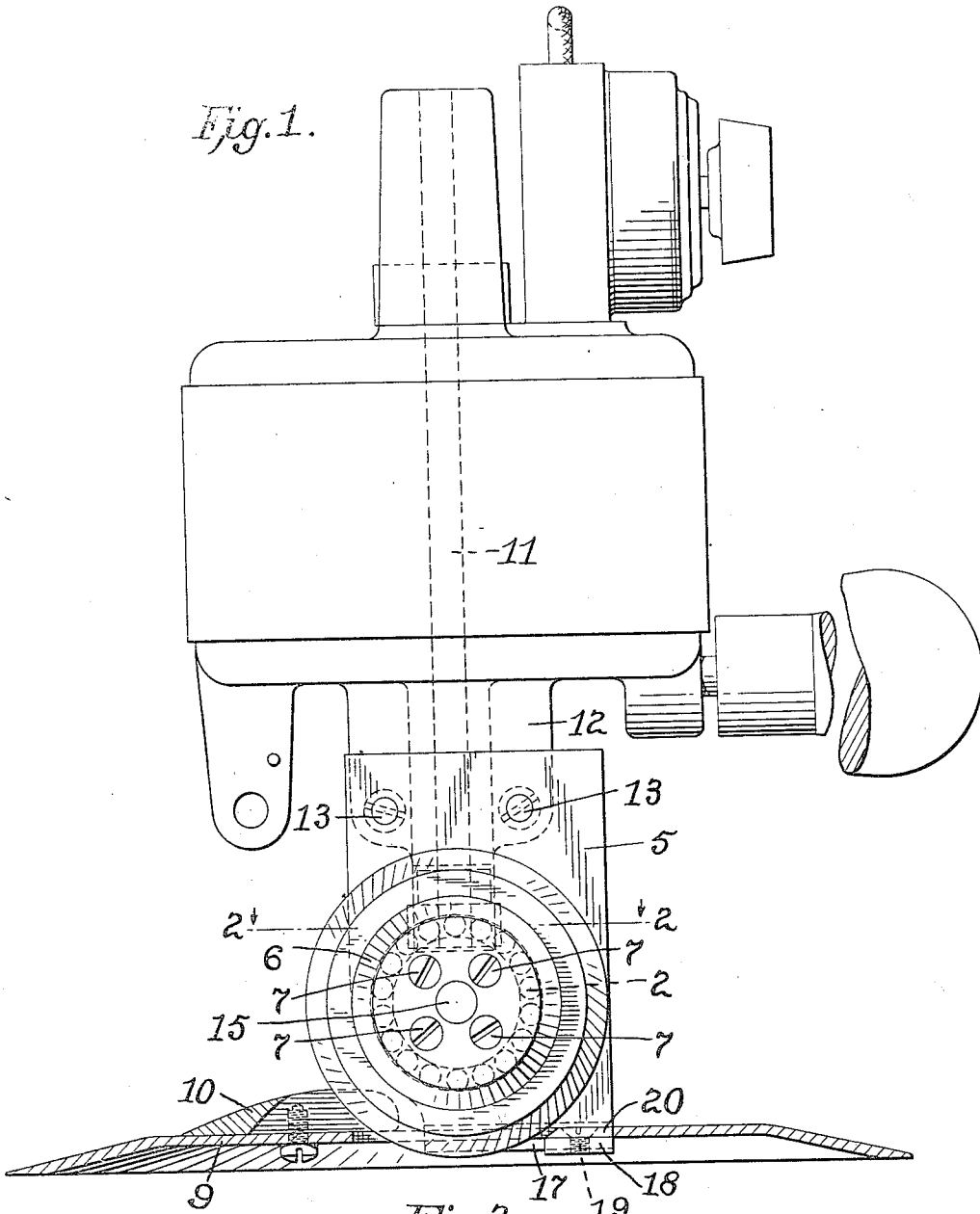
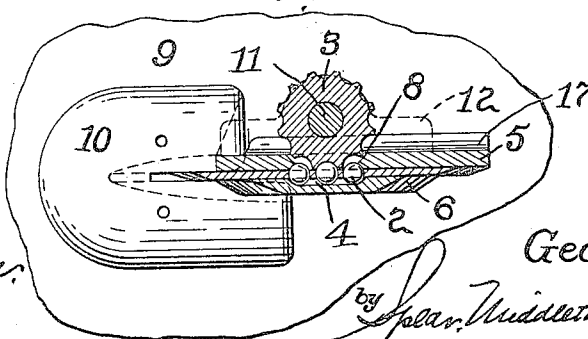


Fig. 2.



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2 SHEETS—SHEET 2.

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Fig. 4.

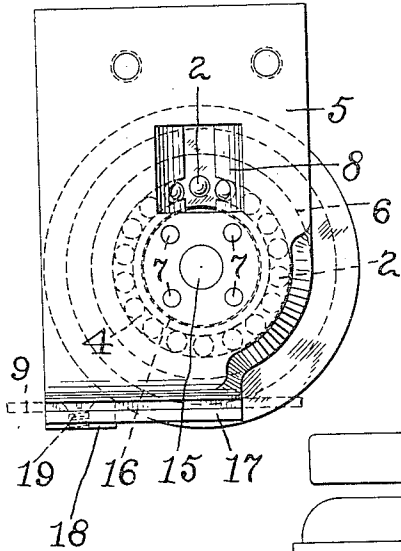


Fig. 3.

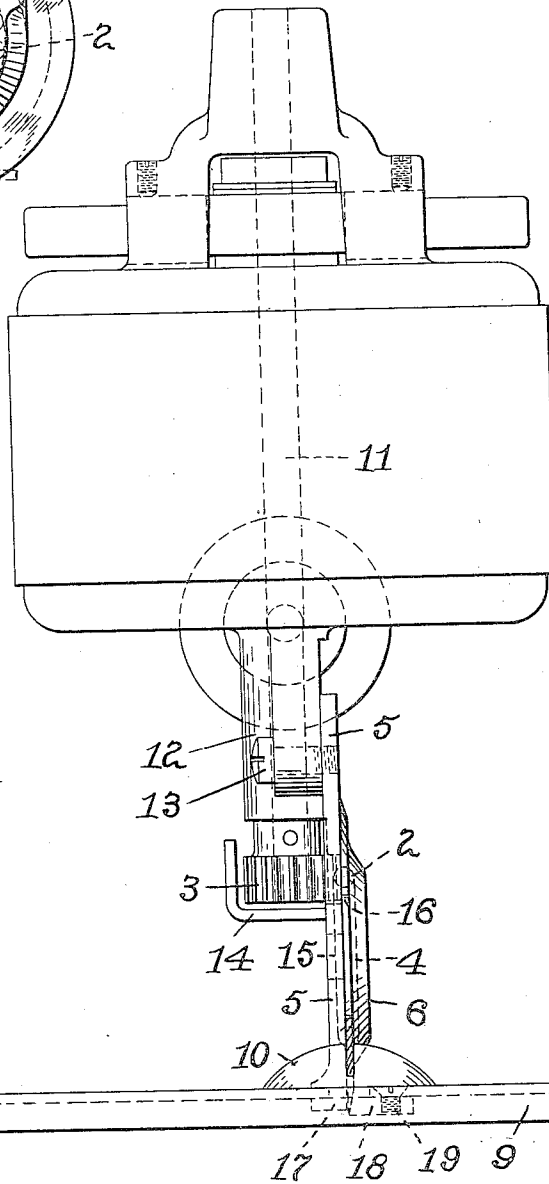


Fig. 5.

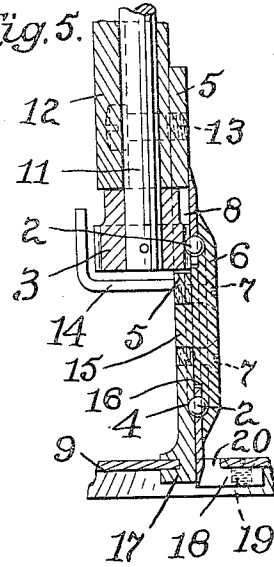
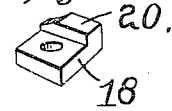


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE LAWSON BALLARD, OF NORRISTOWN, PENNSYLVANIA, ASSIGNOR TO WILDMAN MFG. CO., OF NORRISTOWN, PENNSYLVANIA.

CLOTH-CUTTER.

1,057,914.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed April 28, 1911. Serial No. 623,932.

To all whom it may concern:

Be it known that I, GEORGE LAWSON BALLARD, a subject of the King of Great Britain, residing at Norristown, Pennsylvania, have
5 invented certain new and useful Improvements in Cloth-Cutters, of which the following is a specification.

The purpose of the invention is to employ a circular cutting knife of small diameter and narrow in width to take the
10 place of the ordinary shears for cutting out several pieces or layers at once, the machine being specially adapted for smaller work, and of such size as to be readily handled.

15 The object of using a small cutter is to get the cutting point at the forward center of the cutter at a low point, so as to run into a square corner without having to lift the goods.

20 Certain mechanical difficulties exist in the use of bevel or spur gearing for driving a circular cutter, one being that the bevel gearing takes up considerable room laterally, so that it, with its housing, makes the
25 width of the machine at the knife too wide for practical use in entering the cut made by the knife, and furthermore, with bevel gearing a center bearing is necessary, which also increases the width of the machine at the cutter.

30 I have provided such a drive, and associated features, as entirely dispenses with a center journal for the cutter and bearing therefor, and which dispenses also with
35 bevel or spur gearing, and bearings therefor, and keeps the width of the cutter and its supporting frame to the lowest limit, so that the wheel may enter the division or cut in the cloth layers without unduly
40 spreading and displacing the same, and this with a cutter of small diameter.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly set forth
45 in the claims.

In the drawings, Figure 1 is a side elevation of a cutting apparatus embodying my invention; Fig. 2 is a plan view of a section on the line 2—2 of Fig. 1; Fig. 3 is a front
50 view of the machine; Fig. 4 is a side view of the cutter with a part of its supporting standard; Fig. 5 is a vertical sectional view of the cutter, its standard and driving gear. Fig. 6 is a detail view.

55 The circular cutter disk is provided with

a series of balls 2 arranged in openings therein, and these balls form teeth for engagement with the teeth or ribs of the drive wheel 3, the ribs having the curved recesses between them, as shown in Fig. 2, in which
60 the balls engage, these recesses, however, being in the form of grooves extending vertically of the pinion or toothed wheel. These balls, as the cutter turns, move in a race-
65 way 4 formed between the inner and outer plates 5, 6, the former being secured to or formed with the main frame of the machine, and forming a standard depending therefrom, and the latter being secured to
70 the former by screws 7 passing from the front plate into the rear and through the opening at the center of the circular or annular knife.

As shown in Fig. 2, the rear plate is cut away at 8 on a curve corresponding to the
75 periphery of the toothed wheel, so that said wheel, by working in this space, may engage the balls, as they emerge from the ball race on one side and until they enter the
80 ball race on the other side of the said space.

As most of the wear due to the initial engagement of the toothed wheel with the balls will come on the front plate adjacent the space I arrange for four adjustments of the front plate circumferentially, and for
85 this purpose the four screws are provided, so that the plate may be set in four different positions.

It will be observed that the balls form the driving teeth, and also the bearing or journal for the cutter, no bearing being necessary at all at the center of the cutter.

The cutter operates in connection with a base plate 9 and with a throat plate 10 for directing the cloth to the cutter substantially
95 as shown.

The pinion or toothed wheel is pinned to the drive shaft 11, which is journaled in a hanger 12 extending down from the motor frame, and to this hanger the plate or standard 5 is screwed at 13. A guard for the
100 toothed wheel or pinion is employed at 14.

The front plate 6 has a stud 15 seated in an opening of the plate 5, by which the plate 6 is centered in relation to the plate
105 5, and the plate 6 is also shouldered at 16 to fit into the central opening of the cutter. The cutter, however, does not turn on this shoulder, as will be seen from Fig. 5, for as
110 before stated the balls form not only the

driving means for the cutter, but also the bearing or journal therefor.

In order to connect the standard 5 with the base plate in a simple manner, I form
5 at the lower end of the standard a laterally directed foot or flange 17, which is grooved longitudinally to receive the edge of the base plate 9. A key 18 is held by a screw 19 to the base plate, said key fitting on the under
10 side of said plate and having a lip 20 fitting in the slot of said base plate. The edge of the key bears against the front face of the standard and holds it in place.

I claim as my invention:—

15 1. The combination in an electric cloth cutting machine having a motor, a base plate, a standard, and a rotatable cutting disk, of a driving gear for driving said rotatable cutting disk comprising a pinion,
20 antifriction balls carried by the disk and engaged by the pinion and a frame having a runway for the balls acting as a bearing for the disk, substantially as described.

25 2. The combination in an electric cloth cutting machine having a motor, a base plate, a standard and a rotatable cutting disk, of a driving gear for driving said rotatable cutting disk comprising a pinion, antifriction balls carried by the disk and
30 engaged by the pinion and a frame having a runway for the balls acting as a bearing for the disk, said antifriction balls projecting on each side of the disk and bearing in the runway on each side of said disk, substan-
35 tially as described.

3. The combination in an electric cloth cutting machine having a motor, a base plate, a standard, and a rotatable disk, of

a driving gear for driving said rotatable cutting disk comprising a pinion, antifriction balls carried by the disk and engaged
40 by the pinion and a frame having a runway for the balls and acting as a bearing for the disk, said frame consisting of front and rear plates with a groove in each to make
45 the runways for the balls, substantially as described.

4. The combination in an electric cloth cutting machine having a motor, a base plate, a standard and a rotatable cutting
50 disk, of a driving gear for driving said rotatable cutting disk comprising a pinion, antifriction balls carried in openings in the disk, a frame having a runway for the balls and serving as a bearing for the disk, 55
said frame being composed of front and back plates secured together through a central opening in the disk, substantially as described.

5. The combination in an electric cloth
60 cutting machine having a motor, a base plate, a standard and a rotatable cutting disk, of a driving gear for driving said rotatable cutting disk comprising a pinion, balls carried in openings in the disk and
65 engaged by the pinion, a frame having a runway for the balls and forming a bearing for the disk and means for adjusting one plate circumferentially in relation to the other, substantially as described. 70

In testimony whereof, I affix my signature in presence of two witnesses.

GEORGE LAWSON BALLARD.

Witnesses:

NORMA Z. CONARD,

MARY A. RIEDEL.