

E. F. KOEHLER.

IGNITER.

APPLICATION FILED JUNE 10, 1910.

998,535.

Patented July 18, 1911.

Fig. 1.

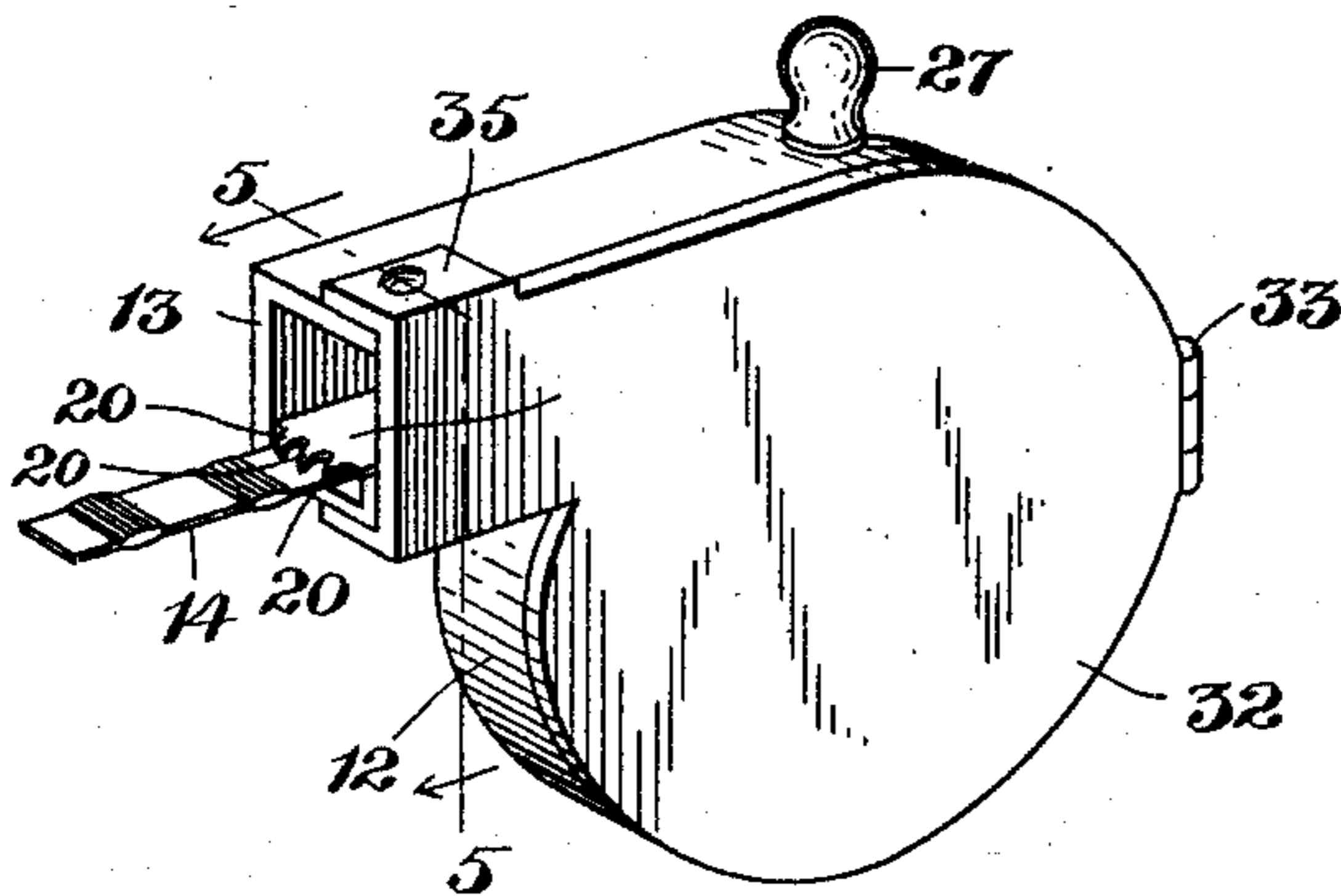


Fig. 2.

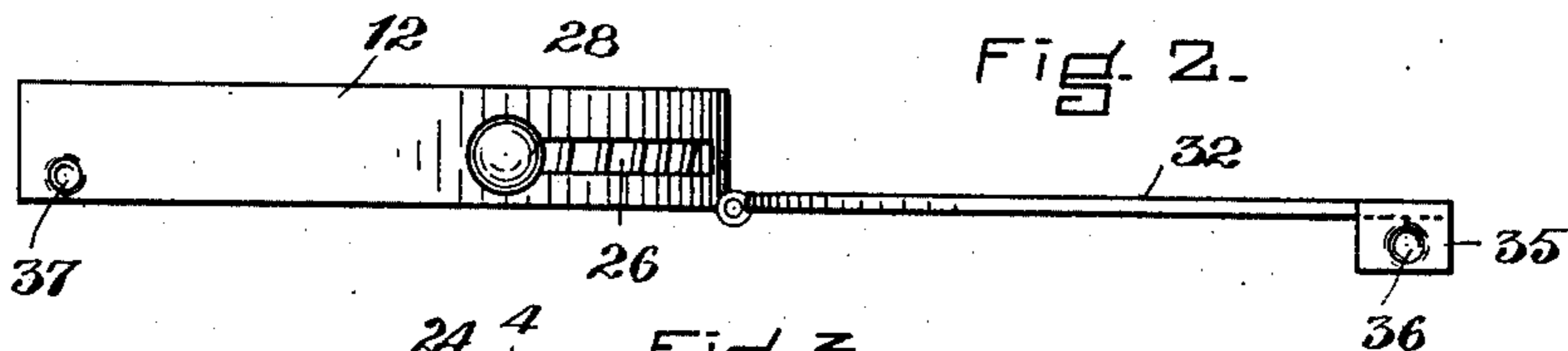


Fig. 3.

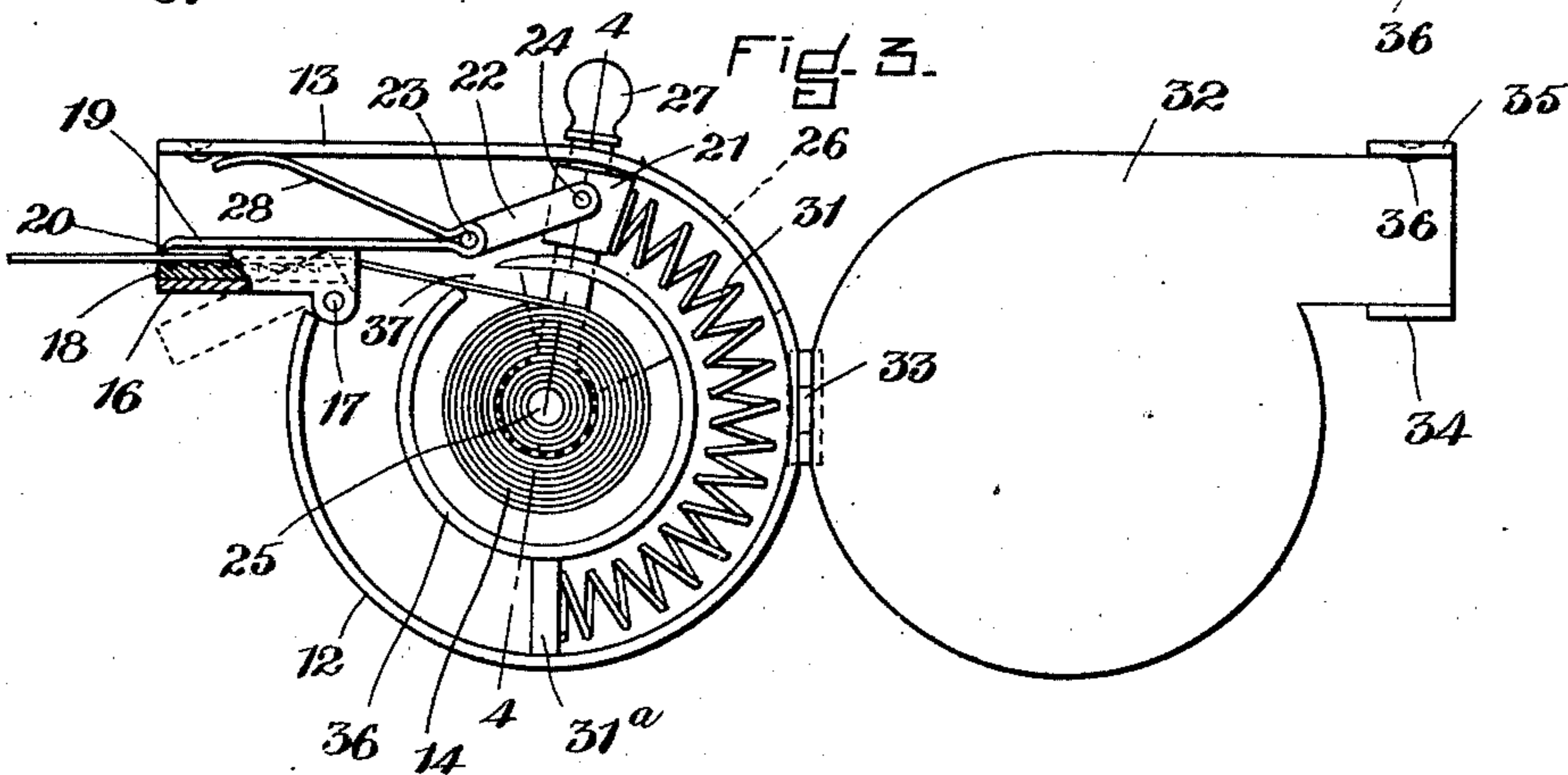


Fig. 4.

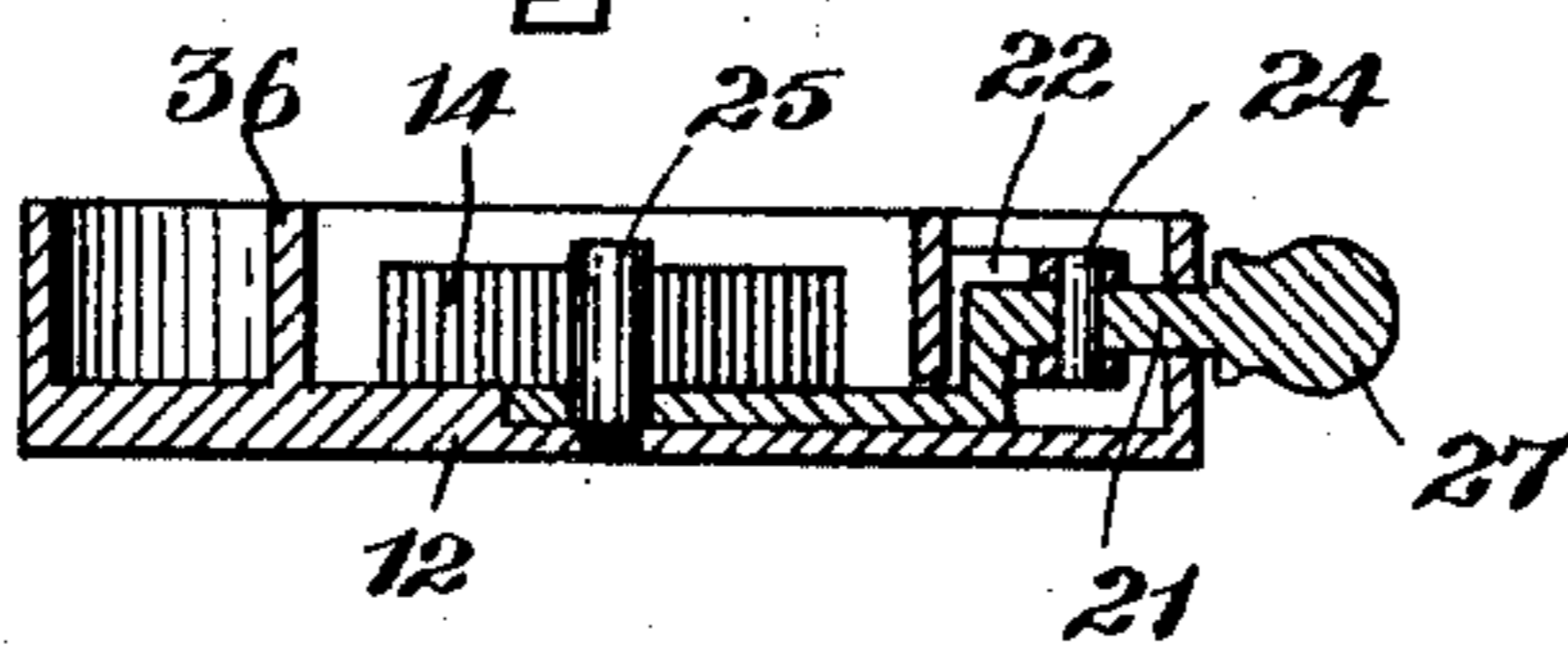
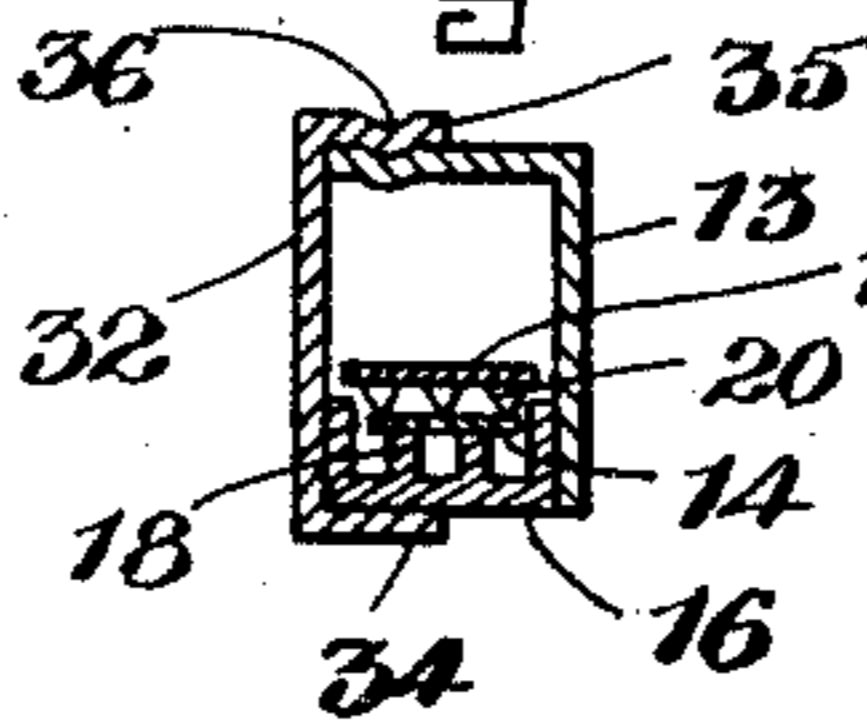


Fig. 5.



WITNESSES.

J. R. Penlstone
H. L. Allen

INVENTOR.

Ernest Felix Koehler.

by *Wright & Associates*
Atty's.

UNITED STATES PATENT OFFICE.

ERNEST FELIX KOEHLER, OF LONDON, ENGLAND, ASSIGNOR TO CHAMPION IGNITER COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

IGNITER.

998,535.

Specification of Letters Patent. Patented July 18, 1911.

Application filed June 10, 1910. Serial No. 566,223.

To all whom it may concern:

Be it known that I, ERNEST FELIX KOEHLER, of London, England, have invented certain new and useful Improvements in Igniters, of which the following is a specification.

This invention relates to igniters adapted to contain a coiled match strip which is provided with spots of fulminating material adapted to be ignited by friction, means being provided for igniting the outer end portion of the strip and projecting the ignited end from the casing of the device.

The invention is an improvement on that shown in my application for Letters Patent of the United States filed October 18, 1909, Serial No. 523,368, and is embodied in the improved construction hereinafter described and claimed.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a perspective view of my improved igniter. Fig. 2 represents an edge view of the same showing the case opened. Fig. 3 is a side view, the case being in the condition represented in Fig. 2, and the strip outlet being shown in section. Fig. 4 represents a section on line 4—4 of Fig. 3. Fig. 5 represents a section on line 5—5 of Fig. 1.

The same reference characters indicate the same parts in all the figures.

The case 12 of my improved igniter is preferably of circular form, and is provided with a strip outlet 13 arranged tangentially to the circular case. The case is formed internally to contain a coiled match strip 14, and permit the passage of the outer end of the strip through the outlet 13. Said outlet is provided with a seat for the portion of the strip which passes through it, said seat being formed to prevent endwise inward movement or retraction of the strip in the outlet. Said seat, as here shown, includes an arm 16 which is suitably secured to the case, and is provided with ratchet toothed bars or strips 18 arranged to bear on the under side of the strip 14, and formed to permit outward movement of the strip through the outlet, and prevent backward or inward movement of the strip, the form of the teeth being shown in Fig. 3. The said strip seat is preferably hinged at 17 to the case, so that its outer end is adapted to be swung downwardly, as indicated by dotted lines in Fig. 3 to facilitate the plac-

ing of the outer end of the strip on the strip seat in preparing the igniter for operation. The strip seat may, however, be rigidly attached to the case, if desired.

19 represents a strip igniting and projecting dog which is adapted to be reciprocated in the outlet 13, and is provided with prongs 20, preferably three in number, adapted to bear on the outer side of the strip 14, and so inclined that when the dog 19 is retracted, the prongs will have a frictional engagement with the fulminating material of the strip 14 without overcoming the holding engagement of the strip with the teeth of the strip seat. When the dog is projected, the prongs 20 positively engage the strip and project or move it outwardly. The strip is therefore ignited by an inward movement of the dog, and projected by an outward movement thereof.

21 represents a dog-operating member which is movable in a curved path within the case 12, and is hinged to the dog 19 in such manner that movements of the operating member in a curved path will impart rectilinear movement to the dog. As here shown, the hinge connection is provided by a link 22 pivoted at 23 to the dog, and at 24 to the operating member.

The operating member 21 is preferably an arm or lever, the inner end of which is perforated to receive a stud 25 affixed to the case, a pivotal connection being thus provided between the operating member and the case. The outer end of the operating member projects from the exterior of the case, and through a slot 26 therein, said outer end being formed as a knob or handle 27.

Means are provided for yieldingly pressing the dog 19 against the outer side of the match strip and holding it so pressed in all positions of the dog, the pressure of the dog against the strip also pressing the strip against the seat 16. As here shown, I have provided the dog with a pressure spring or spring arm 28 which is in sliding contact with the side of the outlet 13 opposite that occupied by the seat 16, the spring 28 being held at all times under tension by its contact with the side of the outlet, and therefore constantly pressing the dog against the match strip and the match strip against the seat 16.

31 represents a spring which bears at one end against an abutment 31^a within the

casing, and at the other end against the operating member 21, said spring normally holding the operating member and the dog 19 projected, as shown in Fig. 3.

5 The case is preferably composed of a body portion which includes the outlet 13, and is open at one side, and a movable cover 32 which is formed to close the open side of the case and outlet, the cover being preferably connected with the case body by means of a hinge 33. Provision is thus made for conveniently inserting a match strip in the case, and inserting its outer end into the outlet 13. The hinge connection 10 between the seat 16 and the case enables the seat to be swung outwardly so that the strip may be more conveniently inserted between the seat and the dog 19. The cover 32 is provided with an ear 34 which projects 20 under the seat 16, as shown in Fig. 5, when the cover is closed, and supports the seat 16 in its operative position. The cover is also provided with an ear 35 which overlaps the upper side of the guide 13 when the cover 25 is closed, and is provided with an inwardly projecting boss 36 which is adapted to spring into a recess 37 in the upper side of the outlet, and detachably confine the cover in its closed position.

30 The case is preferably provided with an internal annular partition 36 which forms the outer wall of the strip-containing chamber, and the inner wall of the spring-containing chamber, said partition having an opening 37 permitting the passage of the 35 strip to the strip outlet. The stud 25 occupies the center of the chamber formed by the partition 36, and the coil may be placed upon said stud, as shown in Figs. 3 and 4.

40 The circular form of the case and the tangential arrangement of the strip outlet relatively to the case, together with the hinge connection between the operating member which is movable in a curved path in the 45 case, and the dog which is movable in a rectilinear path in the outlet, enables the dog to have a reciprocating movement of sufficient amplitude to insure the projection of a sufficient amount of the strip 14, and to 50 insure the ignition of said strip, without requiring a bulky construction. In other words, the device may readily be made of such size that it may be conveniently carried in a pocket.

55 I claim:

1. An igniter comprising a case formed to contain a coiled match strip and having

an outlet for said strip, which is tangential 60 to the case, one side of the outlet being provided with a strip-engaging seat bearing on the inner side of the strip, and adapted to prevent the retraction thereof, a strip-igniting and projecting dog movable in a 65 rectilinear path in the outlet and bearing on the outer side of the strip, and having a resilient pressure member in sliding contact with the opposite side of the outlet, whereby the dog is pressed yieldingly 70 against the strip, and is caused to press the strip against said seat, and an oscillating operating member pivoted to the case, and hinged to the dog to reciprocate the latter, said member having a handle outside the 75 case.

2. An igniter comprising a case formed to contain a coiled match strip and having a strip-outlet, one side of which is formed by a strip seat hinged at its inner end to the 80 case, and provided with means for preventing the retraction of the strip, one side of the case and outlet being open, a movable cover formed to close the open side of the case and outlet, said cover having means 85 for confining the hinged strip seat when the cover is closed, means for detachably confining the cover in its closed position, a strip-igniting and projecting dog movable in the outlet, and means for reciprocating said dog. 90

3. An igniter comprising a circular case having a tangential strip outlet and an annular internal partition forming the outer wall of a coil-holding chamber and the inner wall of a curved spring chamber, said partition having an opening for the passage of 95 the strip to the outlet, an operating member pivoted to the case and extending through the spring chamber to the exterior of the case, a spring located in said chamber and 100 adapted to project the operating member, a strip-igniting and projecting dog movable in the strip outlet and hinged to the operating member, and a spring arm connected with the dog and in sliding contact with one 105 side of the strip outlet, the said outlet being provided at its opposite side with a strip seat formed to prevent retraction of the strip.

In testimony whereof I have affixed my 110 signature, in presence of two witnesses.

ERNEST FELIX KOEHLER.

Witnesses:

W. W. COE,
C. F. BROWN.