

Aug. 25, 1931.

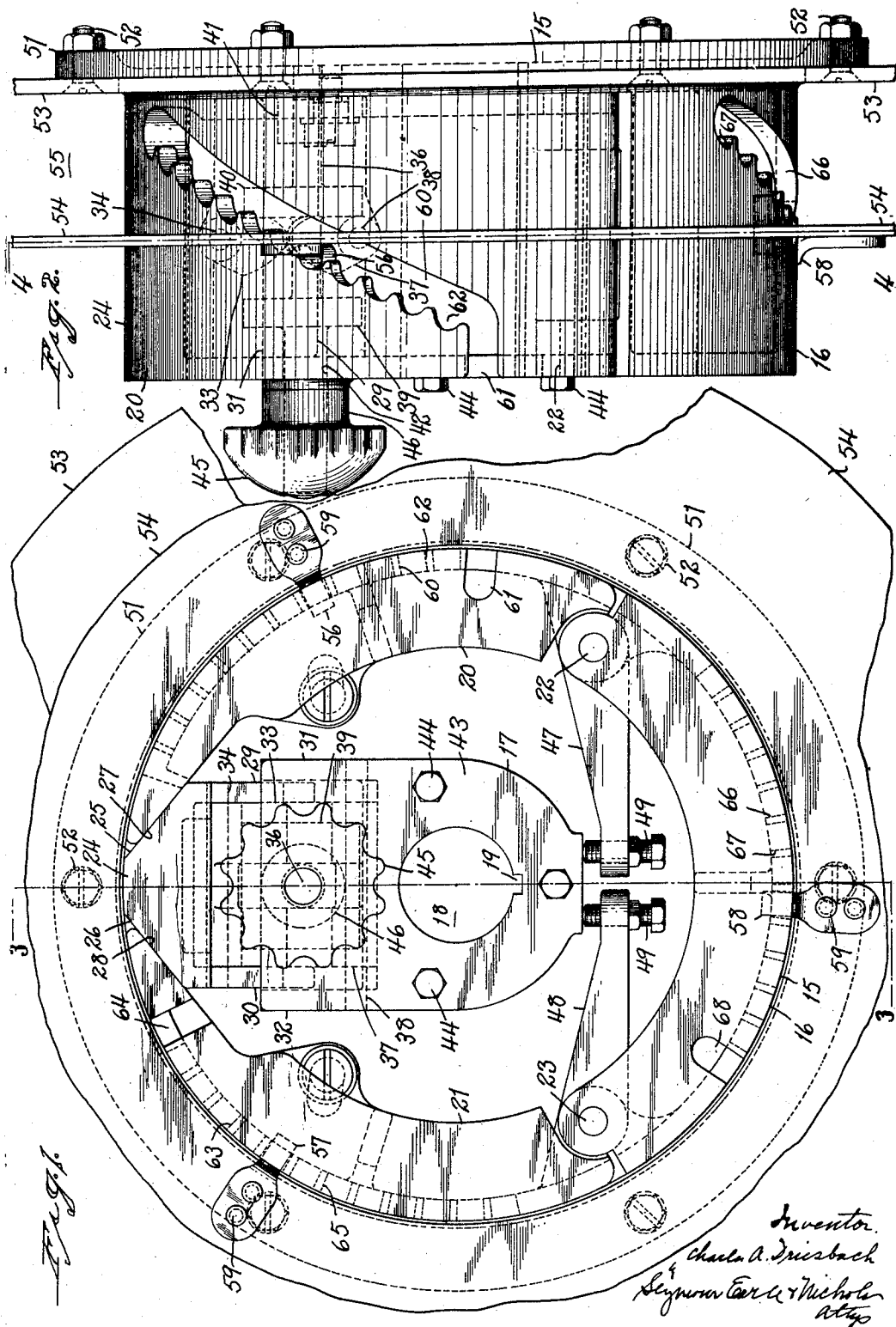
C. A. DREISBACH

1,820,693

ADJUSTABLE REEL FOR STRIP MATERIAL, ETC

Filed May 5, 1930

5 Sheets-Sheet 1



Aug. 25, 1931.

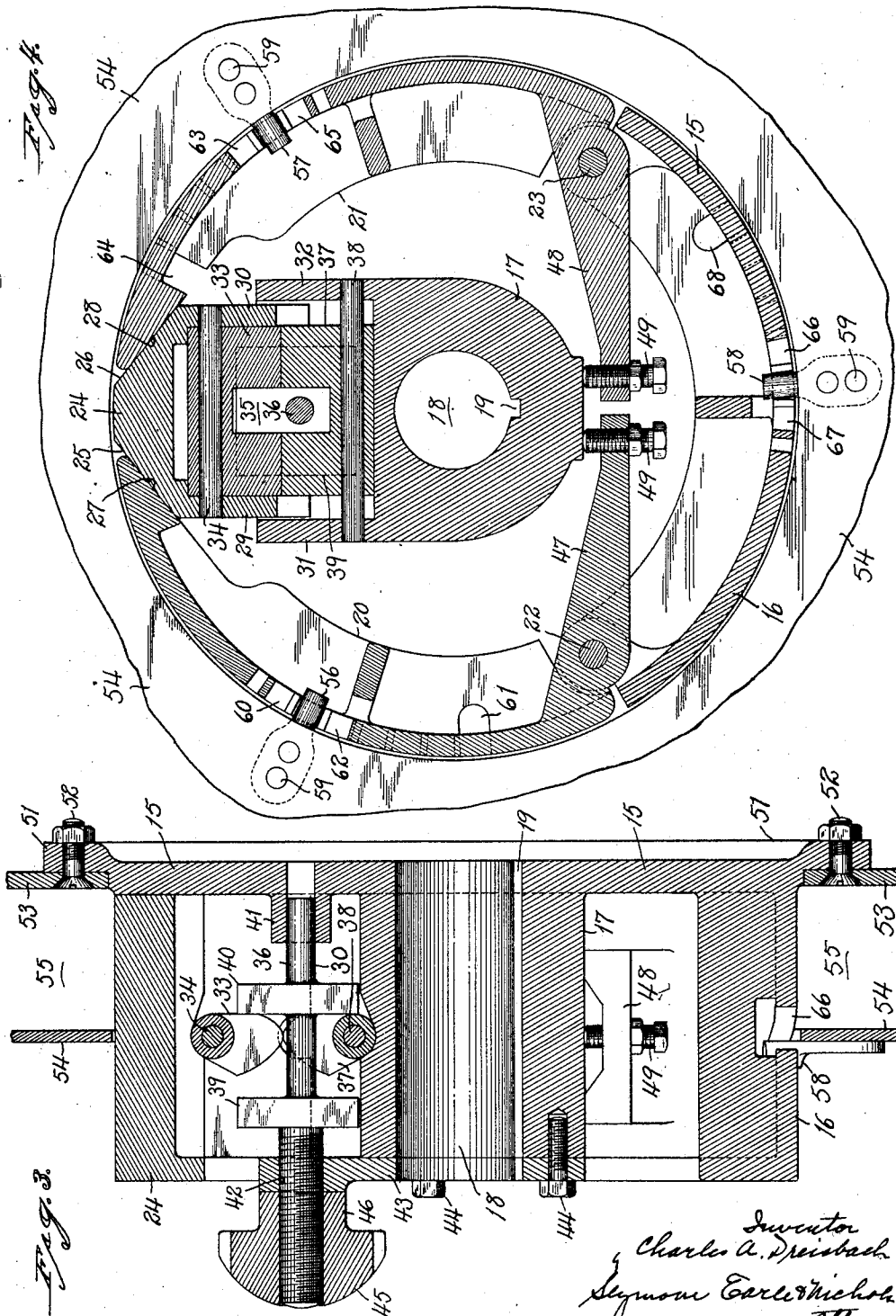
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5 Sheets-Sheet 2



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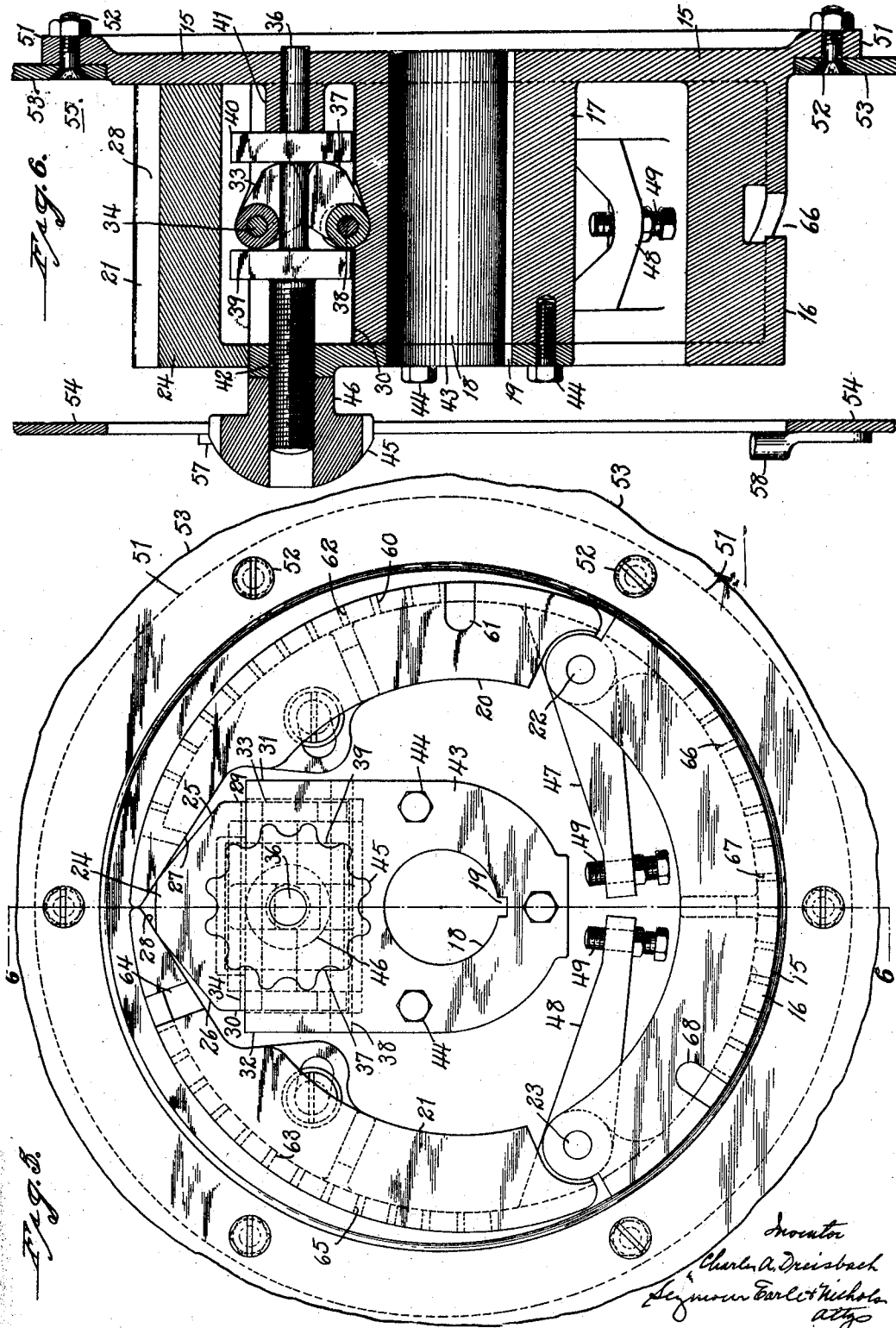
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ADJUSTABLE REEL FOR STRIP MATERIAL, ETC

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5 Sheets-Sheet 3



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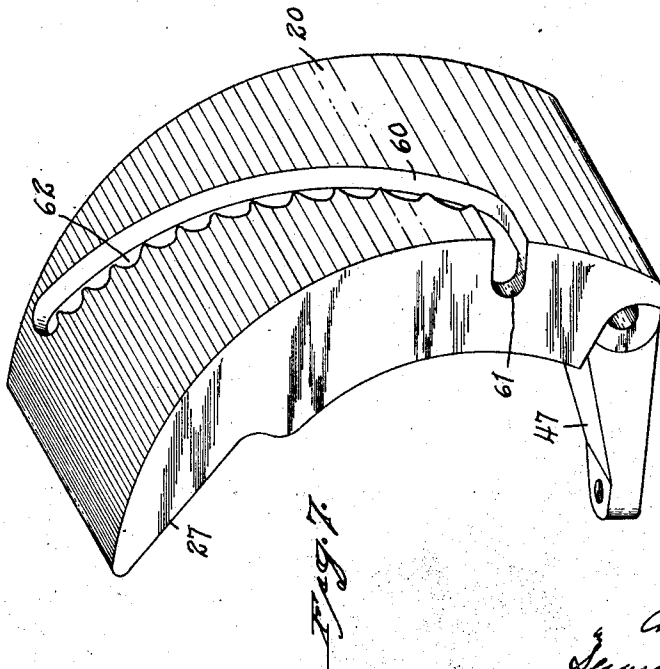
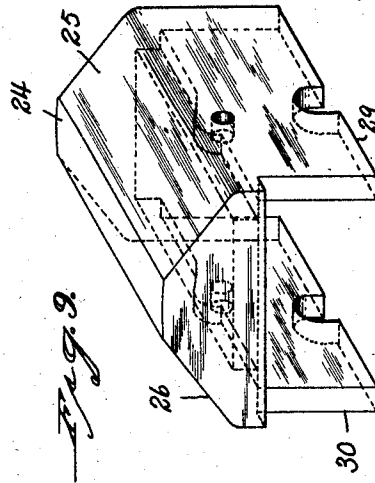
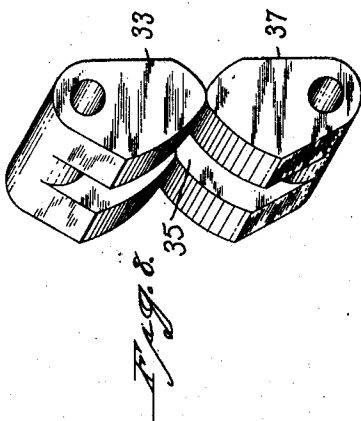
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ADJUSTABLE REEL FOR STRIP MATERIAL, ETC

Filed May 5, 1930

5 Sheets-Sheet 4



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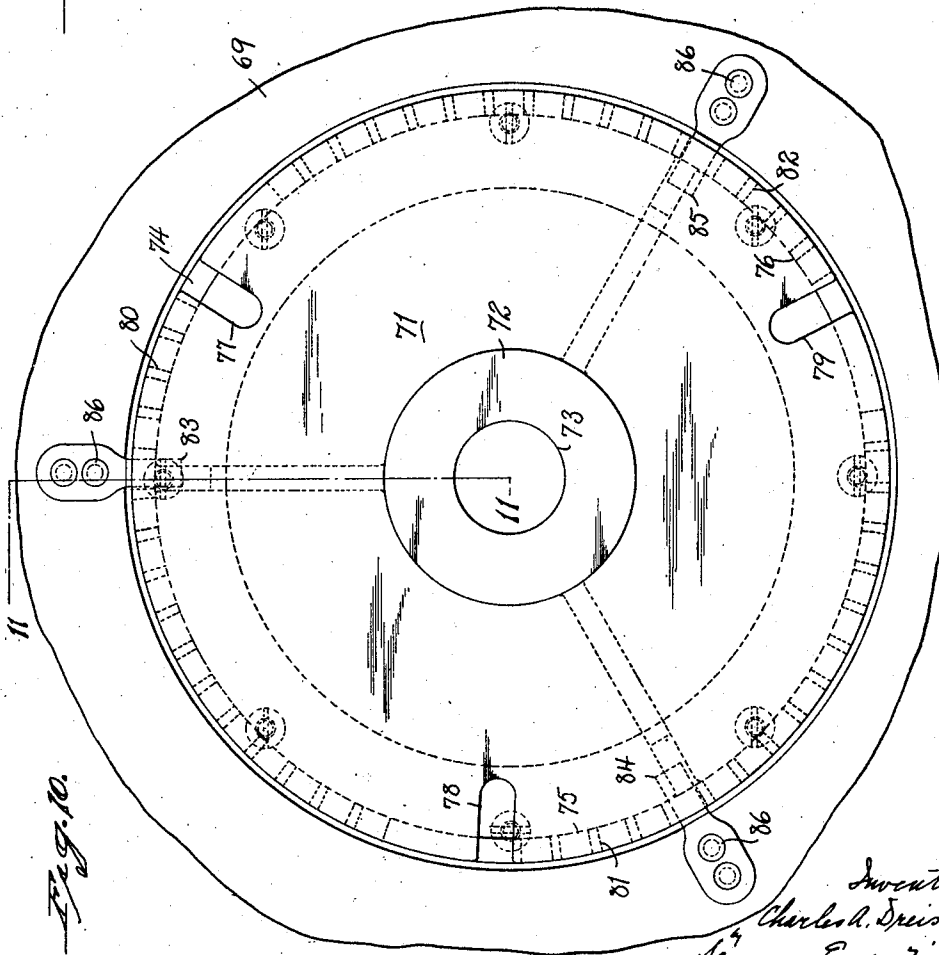
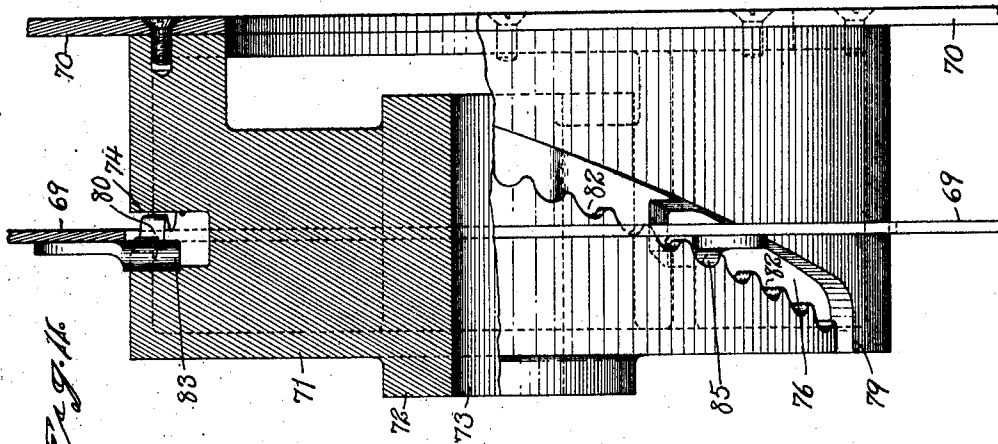
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ADJUSTABLE REEL FOR STRIP MATERIAL, ETC

Filed May 5, 1930

5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

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ADJUSTABLE REEL FOR STRIP MATERIAL, ETC.

Application filed May 5, 1930. Serial No. 449,889.

This invention relates to an improvement in reels and particularly to adjustable reels designed for the reception of strip metal, though not so limited.

5 The main object of this invention is to produce a simple and convenient reel constructed with particular reference to its capacity for ready adjustment to accommodate strip material of different widths.

10 With the above and other objects in view as will appear from the following, my improved reel is characterized by its provision with a body provided in its periphery with a plurality of helically-inclined passages

15 and a pair of complementary guide-flanges, one of which is adjustable and provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said cylindrical body, where-

20 by the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths.

25 My invention further consists in an adjustable reel characterized as above and having certain other details of construction and combinations of parts as will be hereinafter described and particularly recited in the claims.

30 In the accompanying drawings:

Fig. 1 is a view in front elevation of an adjustable reel of a collapsible type embodying my invention, the guide-flanges being

35 broken away;

Fig. 2 is a view thereof in side elevation;

Fig. 3 is a view thereof in transverse section taken on the line 3—3 of Fig. 1;

40 Fig. 4 is a vertical longitudinal sectional view thereof taken on the line 4—4 of Fig. 2;

Fig. 5 is a view in elevation corresponding to Fig. 1 but showing the parts in the positions due to them when the pivotal reel-

45 sectors are in their collapsed positions;

Fig. 6 is a transverse sectional view corresponding to Fig. 3 and taken on the line 6—6 of Fig. 5, the adjustable flange being shown as spaced away from the cylindrical

50 body;

Fig. 7 is a detached perspective view of one of the pivotal sectors;

Fig. 8 is a corresponding view of the pair of complementary sector-expanding toggles;

Fig. 9 is a similar view of the sector-expanding head;

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Fig. 10 is a face view of another form of reel embodying my invention; and

Fig. 11 is a view thereof partly in edge elevation and partly in transverse section taken on the line 11—11 of Fig. 10.

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As will be obvious from the following, my invention is applicable to various types of reels, including collapsible and non-collapsible reels.

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In Figs. 1 to 9 inclusive, I have shown my invention embodied in a collapsible reel, that is to say, a reel in which the drum-portion is constructed so that portions thereof may swing inward to release the stock wound thereon and permit its ready removal. The particular reel shown consists of a disk-shaped body 15 having an integral arcuate drum-sector 16 of substantially 120° in extent and offsetting therefrom, and an integral hub 17 also offsetting from the said disk-shaped body and formed with an axial bore 18 for the reception of a winding-arbor of any suitable type and provided with the usual key-way 19 for

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Complementing the integral drum-sector 16 are a pair of complementary collapsible drum-sectors 20 and 21 respectively pivoted at their lower ends, as viewed in the drawings, upon transverse pins 22 and 23 respectively located at the opposite ends of the integral drum-sector 16 and constituting, in effect, portions of the said reel body.

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The collapsible drum-sectors 20 and 21 are swung outward from their collapsed positions in which they are shown in Figs. 5 and 6 to their expanded or normal positions in which they are shown in Figs. 1 to 4 inclusive, by means of a radially-movable

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The said expanding-head 24 is provided with a pair of depending-flanges 29 and 30, sliding radially between a pair of flanges 31 and 32 upstanding from the hub 17 of the disk-shaped body 15 of the reel, as clearly shown in Fig. 4 of the drawings.

The expanding-head 24 is moved radially outward for similarly moving the free ends of the collapsible drum-sectors 20 and 21 by providing it with a toggle-member 33 located between the depending-flanges 29 and 30 of the said head and pivotally secured therein by means of a pivot-pin 34 and formed with a centrally-arranged transverse clearance-notch 35 for the clearance of an operating-plunger 36, as will hereinafter appear. The toggle-member 33 co-acts with a complementary toggle-member 37 located between the upstanding-flanges 31 and 32 of the hub 17 and pivotally mounted therein by means of a transverse pivot-pin 38.

For the purpose of rocking the toggle-members 33 and 37 from the positions in which they are shown in Fig. 6 to the positions in which they are shown in Fig. 3, and vice versa, the operating-plunger 36 is provided with a pair of spaced-apart rectangular toggle-operating flanges 39 and 40 respectively located in front and in back of the said toggle-members.

The inner end of the operating-plunger 36 reciprocates in a guide-boss 41 forwardly projecting from the body 15, while its forward end is threaded and reciprocates in a bore 42 in a retaining-plate 43 secured to the front face of the hub 16 by means of bolts 44 and serving to retain the expanding-head 24 in place in the reel structure.

The threaded outer end of the operating-plunger 36 is provided with an internally-threaded hand-wheel 45 adapted to have the inner face of its shank 46 bear against the front face of the plate 43 for the purpose of pulling the operating-plunger 36 forward and thus swinging the pivotal drum-sectors 20 and 21 outward into their normal positions in which they are shown in Figs. 1 to 4 inclusive.

It will be obvious from the foregoing that by outwardly screwing the hand-wheel 45 upon the threaded forward end of the operating-plunger 36 to retire its shank 46 away from the outer face of the retaining-plate 43, a slight inward pressure or blow upon the said plunger will cause the flange 39 thereof to engage the toggle-members 33 and 37 and cause the same to swing inward from the positions in which they are shown in Figs. 3 into the positions in which they are shown in Fig. 6, thereby permitting the expanding-head 24 to move radially inward, which in turn permits the free upper ends of the collapsible drum-sectors 20 and 21 to swing inward from the positions in

which they are shown in Figs. 1 and 4 to the positions in which they are shown in Fig. 5.

With the collapsible drum-sectors 20 and 21 swung inward, as just above described, it is obvious that the periphery of the drum formed by the said collapsible drum-sectors and the integral drum-sector 16, will be decreased in effective diameter and thus permit the ready removal of the material wound upon the reel.

When it is desired to restore the collapsible drum-sectors 20 and 21 to the normal expanded positions, this may be effected by turning the hand-wheel 45 upon the threaded outer end of the operating-plunger 36 with the effect of drawing the latter outward and hence of swinging the toggle-members 33 and 37 from the positions in which they are shown in Fig. 6 to the positions in which they are shown in Fig. 3, thereby moving the expanding-head 24 radially outward and similarly moving the free ends of the collapsible drum-sectors 20 and 21.

To limit the described outward swinging movement of the drum-sectors 20 and 21, the same are respectively provided with inwardly-extending arms 47 and 48, each carrying at its inner end an adjustable stop-screw 49 engaging with the under surface of the hub 17.

Coming now to the feature of my invention which concerns itself with the adjustability of the reel to accommodate strip material of varying widths, the disk-shaped body 15 of the reel structure is formed with an outwardly-projecting integral annular flange 51 to which is secured, by means of bolts 52, what I shall for convenience of description refer to as a "fixed guide-flange" 53 of the reel structure.

The fixed guide-flange 53 is complemented by an adjustable guide-flange 54 in forming a storage space 55 for the reception of strip material, provided at equidistant points with three (more or less) inwardly-projecting coupling-fingers 56, 57 and 58, secured thereby by means of rivets 59.

For the purpose of securing the adjustable guide-flange 54 in spaced relationship with respect to the fixed guide-flange 53, the coupling-finger 56 of the former is entered into a helically-inclined slot or passage 60 formed in the periphery of the collapsible drum-sector 20 and opening through the front edge thereof as at 61. The forward wall of the said helically-inclined slot 60 is formed with a series of notches or pockets 62 into any given one of which the said coupling-finger 56 may be seated.

Similarly, the coupling-finger 57 is entered into a helically-inclined slot or passage 63 formed in the periphery of the collapsible drum-sector 21 and opening through the for-

ward face thereof as at 64, and provided with notches or pockets 65 corresponding to the notches 62 already described in the sector 20.

The coupling-finger 58 is entered into a helical slot or passage 66 formed in the periphery of the integral drum-sector 16 and corresponding to the slots 60 and 63 and, like them, provided in its forward wall with notches or pockets 67 and opening through the front edge of the said integral drum-sector as at 68.

From the foregoing, it will be seen that the adjustable guide-flange 54 may be entirely removed from the reel structure by disengaging its coupling-pins 56, 57 and 58 from the particular notches 62, 65 and 67 and moving the said flange simultaneously in a clockwise and outward direction until the said coupling-fingers are brought into line with the forward ends of the helically-inclined slots 60, 63 and 66, after which the said flange may be drawn axially outward and entirely detached from the reel structure, as shown in Fig. 6.

By seating the coupling-fingers 56, 57 and 58 in the desired notches in the helically-inclined slots 60, 63 and 66, the distance between the adjustable flange 54 and the fixed flange may be readily and conveniently varied to accommodate strip material of various widths.

Coming now to the non-collapsible reel structure shown in Figs. 10 and 11, provision for the adjustment of the adjustable guide-flange 69 with respect to the stationary guide-flange 70 is provided for in the same manner as that described for the structure in the preceding figures.

In the non-collapsible reel now being described, the cylindrical body 71 is provided with a hub 72 having an arbor-receiving bore 73 and having its periphery provided with three (more or less) helically-inclined slots or passages 74, 75 and 76 respectively opening through the outer face of the skeletonized body 71 as at 77, 78 and 79, and similarly provided with notches or pockets 80, 81 and 82 respectively.

The helically-inclined slots 74, 75 and 76 respectively receive inwardly-extending coupling-fingers 83, 84 and 85 projecting radially inward from the adjustable guide-flange 69 to which they are secured by rivets 86.

The adjustable guide-flange 69 is adjustable with respect to the fixed guide-flange 70 and is removable from the reel structure in the same manner as that already described for the adjustable guide-flange 54 of the collapsible reel shown in Figs. 1 to 9 inclusive.

While I have shown and described the reel structure herein as provided with annular washer-like guide-flanges, it will be obvious to those familiar with the art to

which my invention relates, that instead of continuous flanges a series of fingers or studs may be employed in lieu thereof, as is common practice, and I wish, therefore, to have it understood that by the use of the term "guide-flanges" as used herein, I wish to have the same construed as including the flanges illustrated, or their equivalent parts.

It will be understood by those skilled in the art that my invention may assume varied physical forms without departing from my inventive concept and I, therefore, do not limit myself to the specific embodiment herein chosen for illustration, but only as indicated in the appended claims.

I claim:

1. In an adjustable reel, the combination with a body provided in its periphery with a plurality of helically-inclined passages; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said body; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths.

2. In an adjustable reel, the combination with a body provided in its periphery with a plurality of helically-inclined passages provided in their outer walls respectively with a series of anchoring-notches; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said body; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths.

3. In an adjustable reel, the combination with a body provided in its periphery with a plurality of helically-inclined passages opening through the front face thereof; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said body; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths and whereby the said adjustable flange may be readily detached from the said body.

4. In an adjustable reel, the combination with a body provided in its periphery with a plurality of helically-inclined passages opening through the front face thereof and provided in their outer walls respectively with a series of anchoring-notches; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said body; whereby the space between the said

complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths and whereby the said adjustable flange may be readily detached from the said body.

5. In an adjustable reel, the combination with an inwardly-collapsible body provided in its periphery with a plurality of helically-inclined passages; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said body; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material.

6. In an adjustable reel, the combination with an inwardly-collapsible body provided in its periphery with a plurality of helically-inclined passages provided in their outer walls respectively with a series of anchoring-notches; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said body; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material.

7. In an adjustable reel, the combination with an inwardly-collapsible body provided in its periphery with a plurality of helically-inclined passages opening through the front face of the said collapsible body; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said body; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material and whereby the said adjustable flange may be readily detached from the collapsible body.

8. In an adjustable reel, the combination with an inwardly-collapsible body provided in its periphery with a plurality of helically-inclined passages opening through the front face of the said collapsible body and provided in their outer walls respectively with a series of anchoring-notches; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said body; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material and whereby the said adjustable flange may be readily detached from the collapsible body.

9. In an adjustable reel, the combination with a collapsible body comprising a normally-fixed drum-sector and a pair of inwardly-movable drum-sectors flanking the

same, each of the said sectors being provided with a helically-inclined passage; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said drum-sectors; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths.

10. In an adjustable reel, the combination with a collapsible body comprising a normally-fixed drum-sector and a pair of inwardly-movable drum-sectors flanking the same, each of the said sectors being provided with a helically-inclined passage provided in its outer wall with a series of anchoring-notches; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said drum-sectors; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths.

11. In an adjustable reel, the combination with a collapsible body comprising a normally-fixed drum-sector and a pair of inwardly-movable drum-sectors flanking the same, each of the said sectors being provided with a helically-inclined passage opening through the front face thereof; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending passages in the said drum-sectors; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths and whereby the said adjustable flange may be readily detached from the body.

12. In an adjustable reel, the combination with a collapsible body comprising a normally-fixed drum-sector and a pair of inwardly-movable drum-sectors flanking the same, each of the said sectors being provided with a helically-inclined passage opening through the front face thereof and provided in its outer wall with a series of anchoring-notches; of a pair of complementary guide-flanges, one of which is provided with a plurality of inwardly-extending coupling-fingers entering the helically-inclined passages in the said drum-sectors; whereby the space between the said complementary flanges may be readily and conveniently varied for the accommodation of strip-material of different widths and whereby the said adjustable flange may be readily detached from the said body.

In testimony whereof, I have signed this specification.

CHARLES A. DREISBACH.