

Nov. 22, 1927.

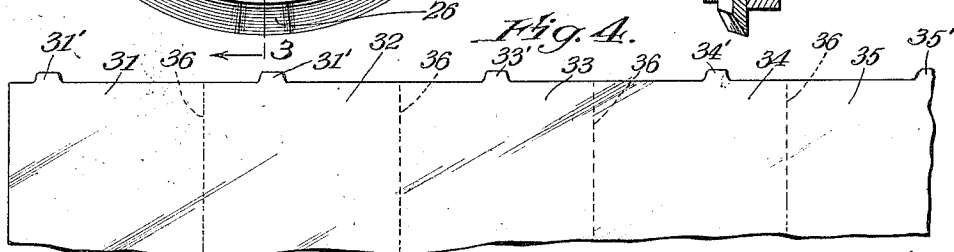
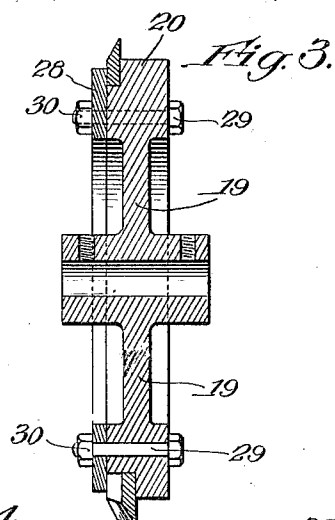
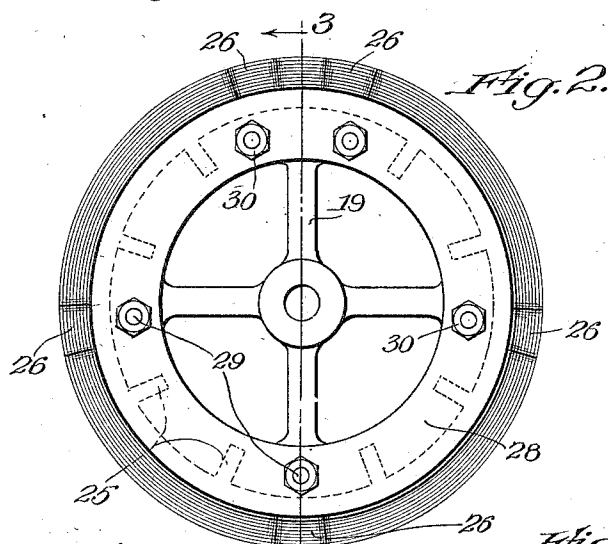
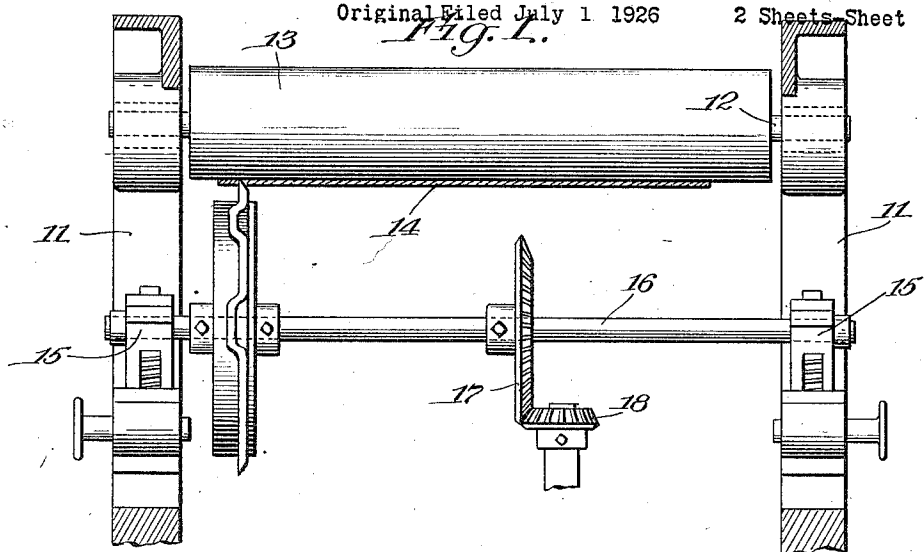
1,650,425

R. H. BURGESS

DIE CUTTING WHEEL

Original Filed July 1 1926

2 Sheets, Sheet 1



Witnesses:

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[Signature]

Inventor:
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By Joshua R. H. Toss
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Nov. 22, 1927.

R. H. BURGESS

1,650,425

DIE CUTTING WHEEL

Original Filed July 1, 1926

2 Sheets-Sheet 2

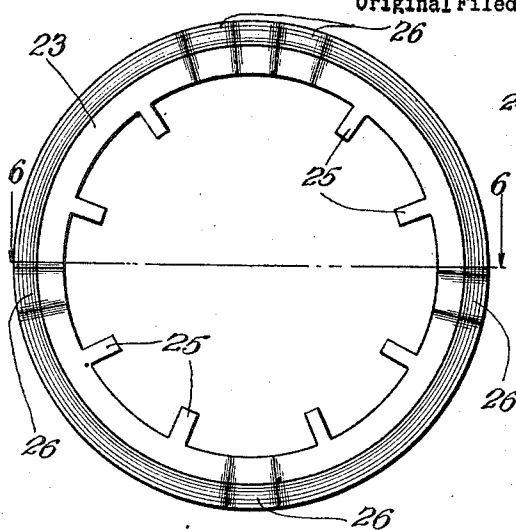


Fig. 5.

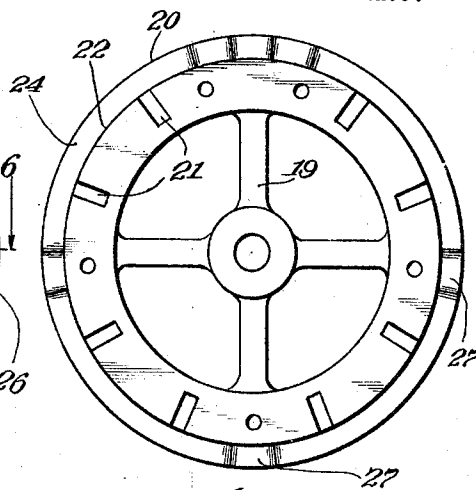


Fig. 7.

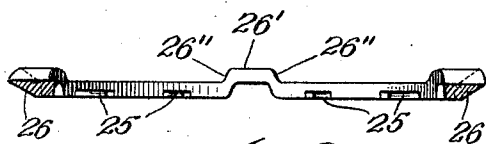


Fig. 6.

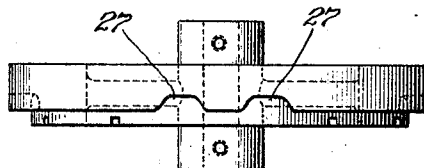


Fig. 8.

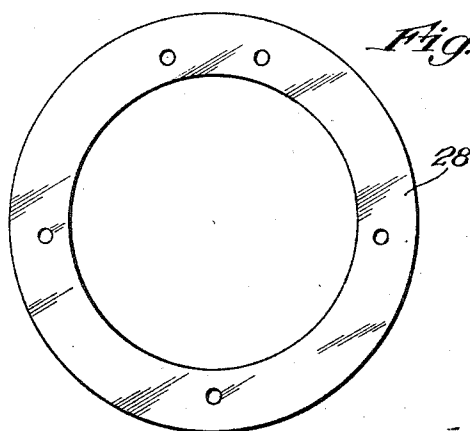


Fig. 9.

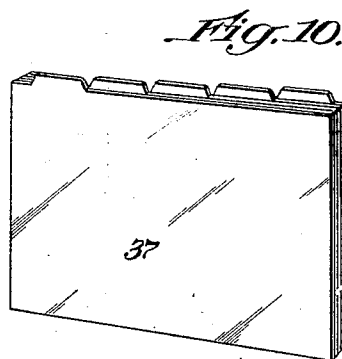


Fig. 10.

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UNITED STATES PATENT OFFICE.

ROY H. BURGESS, OF GLEN ELLYN, ILLINOIS.

DIE-CUTTING WHEEL.

Original application filed July 1, 1926, Serial No. 119,847. Divided and this application filed November 9, 1926. Serial No. 147,240.

My present invention relates to improvements in die cutting wheels, such as are used in tab cutting mechanism for vertical file folding machines of the kind described and claimed in U. S. Letters Patent No. 1,574,789, granted to me on March 2, 1926, although it is to be understood that my present improvements are not confined to that particular kind of mechanism or machine.

The present application is a division of my co-pending application Serial No. 119,847, filed July 1, 1926.

An object of my invention is to provide a die cutting wheel means in which the parts are so constructed and arranged that the die cutting blade may be readily removed from the wheel proper, to make provision either for the re-sharpening or the re-placement of the die cutting blade as occasion requires.

A further object is to provide a die cutting blade for producing differently positioned tabs on sets of vertical file holders; the construction of the blade being such that upon each revolution thereof, there will be produced a set of die cut folder tops having tabs so collated or co-ordinated that when the completed set of folders is filed vertically in a filing cabinet, all tabs will be visible at a glance.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Fig. 1 represents a fragmental vertical section through a file folding machine, illustrating how my improved die cutting wheel means may be employed in practice;

Fig. 2 represents a side elevational view of a complete rotary cutting wheel;

Fig. 3 represents a central section taken on the line 3—3 of Fig. 2;

Fig. 4 represents a plan view of a set of die cut tops produced in a web sheet upon one revolution of the rotary die cutting wheel;

Fig. 5 is a side elevational view of the cutting blade as it appears when removed from the rotary die cutting wheel;

Fig. 6 is a cross section taken on the line 10—10 of Fig. 5;

Fig. 7 represents a side elevational view of the rotary die cutting wheel with the blade and clamping ring removed;

Fig. 8 represents an edge view of the parts shown in Fig. 7;

Fig. 9 is a side elevational view of the clamping ring by which the cutting blade is secured in place upon the rotary die cutting wheel; and

Fig. 10 is a perspective view of a set of vertical file folders produced with individual tabs in collated relation.

Referring first to Fig. 1, in which I have illustrated a sufficient portion of a tab cutting mechanism for the vertical file folding machine to disclose a practical application of my present invention, it will be seen that the supporting frame-work includes upright elements 11 in the top portions of which is rotatably mounted the axis 12 of backing roller 13 which is rotated through the engagement therewith of a sheet 14 consisting of a web of relatively heavy manila paper of the type usually employed in producing vertical file folders. The roller 13, as already intimated, comprises a backing for the traveling web sheet 14 during the die cutting operations; and to this end said roller is provided with a highly tempered steel surface. Below the backing roller 13, the upright elements 11 are equipped with vertically adjustable and yieldable bearings 15 in which a main driving shaft 16 is mounted for rotation. Power is transmitted to the driving shaft 16 through the interengaged gears 17 and 18, of which the gear 18 is associated with a vertically adjustable transmission (not shown) and of which the gear 17 is removable and replaceable in order to compensate for the inter-changing of the die cutting wheels.

The die cutting wheel, which constitutes the subject matter of my present invention, is removably mounted on the main driving shaft 16 and co-operates with the backing roller 13 to produce the sets of vertical file folders from the traveling web sheet 14. The preferred form of construction of the die cutting wheel, as illustrated in the accompanying drawings, comprises a wheel proper 19 with a flange or felly 20 provided at one side or face with spaced apart pin receiving slots 21 which extend radially inwardly into the body of the flange from a circumferen-

tial recess 22. A circular cutting blade 23 is removably seated in the circular recess 22 and abuts a circular shoulder 24 which results from the provision of said recess.

Said blade 23 has pins 25, radially and inwardly projecting from its inner periphery, which fit into the pin receiving slots 21 so as to hold the blade in place against creeping movement.

At certain predetermined interval-spaced positions, the blade 23 is formed with laterally offset cutting portions 26, suitably accommodated in counter-sinks 27 which extend laterally through the shoulder 24 and into the body of the flange. The laterally offset cutting portions 26, as will appear more fully from an inspection of the accompanying drawings, are produced on the same side of the blade and are tab-shaped comprising cutting parts 26' for producing the top ends of the tabs and end parts 26'' for producing the opposite ends of the tabs. For securing the blade in its circumferential recess upon the flange and against the shoulder 24, I provide a clamping ring 28 formed to fit flatwise upon the side of the wheel flange and to overlie the circular blade 23. Suitable bolt means 29 are taken through the clamping ring 28 and wheel flange, and suitable nuts 30, applied to said bolt means as shown in Figs. 2 and 3, secure the parts firmly together. Now, according to an important feature of my improvements, the circular blade 23 is of a circumferential dimension precisely equal to the composite length of the set of file folder tops as 31, 32, 33, 34 and 35, to be cut in the traveling web sheet 14; and where the file folder tops as 31 to 35 inclusive are to be provided with collated or co-ordinated tabs as 31' to 35', respectively, the laterally offset cutting portions 26 are produced on the circular blade in such relative positions that upon each revolution of the rotary die cutting wheel a set of die cut tops as 31 to 35 having collated tabs as 31' to 35', respectively, will be produced from the web sheet 14.

After the web sheet through the co-operation of the rotary die cutting wheel and backing roller has had the file folder tops die cut therein, any suitable folding and folder severing means, such as are illustrated in my patent above referred to, may be employed for folding the web sheet lengthwise and then severing it along separating lines as 36 to produce complete file folders 37, as illustrated in Fig. 10. Now, from what has been said, it will be understood, that rotary die cutting wheels as 19 of different sizes may be applied to the main shaft 16 for cutting different sets of file folding tops from the web sheet. For instance, the rotary die cutting wheel may be reduced in size so that upon each revolution it will die cut four file folder tops; or it

may be still further reduced in circumferential dimension so that it will cut on each revolution but three file folder tops.

While I have illustrated and described the rotary cutting wheel 19 as having the laterally offset portions 26 so spaced that the individual tabs will be formed in collated or co-ordinated order as illustrated in Figs. 4 and 10, where the tabs 31' to 35' are shown as formed on the file folder tops at increasing distances from the left hand ends of the succeeding tops comprising the set, the blade may also be formed, if desired, with the laterally offset cutting portions 26 so positioned that the tabs, instead of appearing in correlated position, will be correspondingly positioned on the succeeding tops to come one behind the other in the completed set of folders.

Owing to the adjustable character of the bearings for operatively supporting the main shaft 16 and the adjustable character of the transmission means for imparting power to said shaft 16, die cutting wheels of different sizes may be employed in connection with said shaft 16, so that different sets of file folder tops may be produced from the traveling web sheet without altering or changing the backing roller 13.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A die cutting wheel comprising a wheel stock with a circumferential flange; a circular cutting blade seated in a recess in said flange and provided with interval-spaced laterally projecting cutting portions seated in countersinks in said flange; and means for securing said blade in place on said flange, substantially as described.

2. A die cutting wheel comprising a wheel stock including a circular flange provided with a recess and a shoulder; a circular cutting blade seated in said recess and abutting said shoulder; laterally projecting tab cutting portions on said blade seated in countersinks extending inwardly into said flange through said shoulder; and means for securing said blade in place on said flange, substantially as described.

3. A die cutting wheel comprising a wheel stock including a circular flange provided with a recess and a shoulder; there being side slots extending radially into said flange from said recess and countersinks extend-

ing laterally into said flange through said shoulder; a circular cutting blade seated in said recess and abutting said shoulder; pins on the inner periphery of said blade seated in said side slots and laterally projecting tab cutting portions on said blade seated in countersinks extending inwardly into said flange through said shoulder; and means for clamping said blade in place on said flange, substantially as described.

4. A die cutting wheel for die cutting web sheets comprising a circular stock provided with a circumferential flange and with apertures extending into its body from its circumference; a circular cutting blade surrounding said stock and provided with pins received in said apertures; interval-spaced laterally projecting cutting portions formed

on said blade, there being countersinks in said flange to receive said laterally projecting cutting portions, a clamping ring surrounding said stock and abutting said blade; and bolt means taken through said clamping ring and circular stock for securing said blade between said clamping ring and said flange, substantially as described.

5. A die cutting wheel comprising a wheel stock having a peripheral recess in which is detachably secured a circumferential cutting blade, said cutting blade having individual tab cutting portions disposed in different relative positions, substantially as described.

In testimony whereof I have signed my name to this specification.

ROY H. BURGESS.