

May 24, 1949.

A. SCRIVENER
MAGNETIC SEPARATOR HAVING MEANS FOR WIPING
AND SCRAPING THE CARRIER DISK

2,471,044

Filed Oct. 26, 1945

2 Sheets-Sheet 1

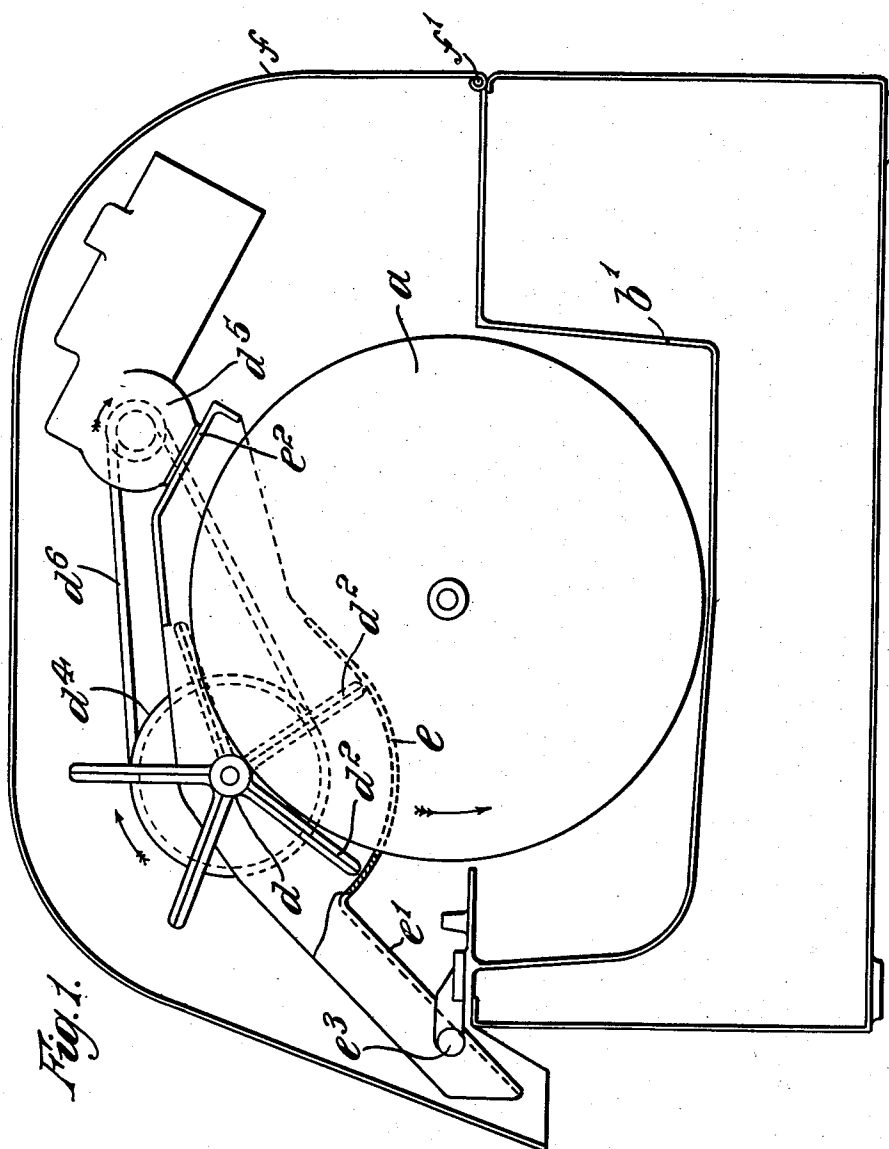


Fig. 1.

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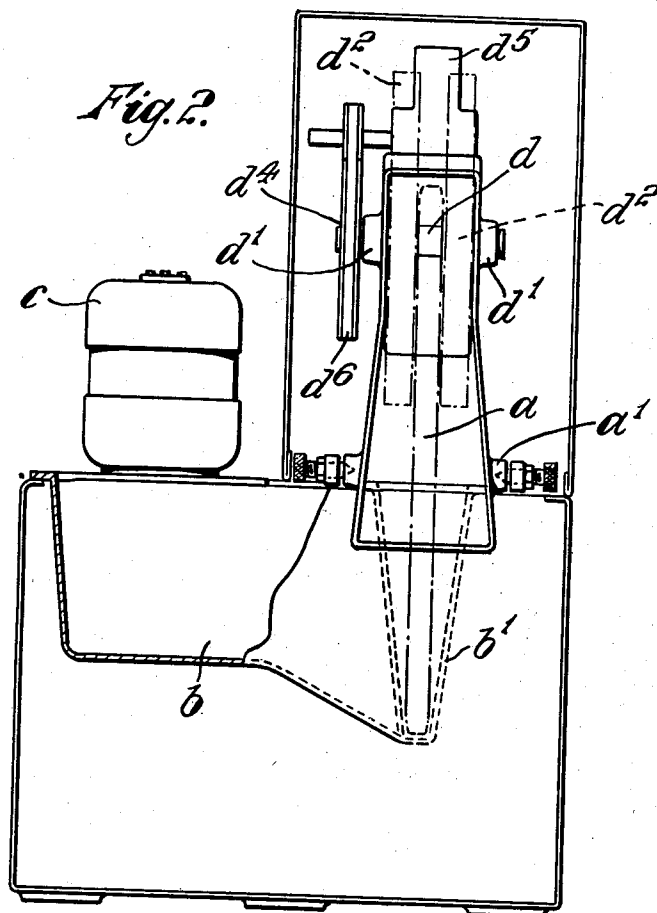
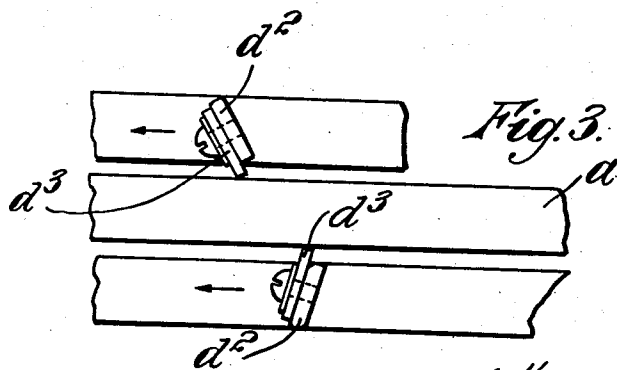
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UNITED STATES PATENT OFFICE

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MAGNETIC SEPARATOR HAVING MEANS
FOR WIPING AND SCRAPING THE CAR-
RIER DISK

Arthur Scrivener, Birmingham, England

Application October 26, 1945, Serial No. 624,882
In Great Britain November 11, 1944

3 Claims. (Cl. 209—229)

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This invention has reference to means for rotating and wiping or scraping a magnetic separator carrier disc, and has particular application to one form of the magnetic separator device described and claimed in my application Serial No. 554,120 dated September 14, 1944, now Patent No. 2,459,343, issued Jan. 18, 1949, where a series of magnetic plugs or cylindrical cores are mounted in a carrier disc which disc is rotatably mounted within a restricted passageway in a fluid bath from which liquid it is desired to extract metallic particles.

The object of the present invention is to provide an improved means of rotating and of wiping or scraping the faces of the magnetic plugs or cores to which the ferrous particles adhere during the passage of a part of the disc through the liquid bath.

The invention consists of means for rotating and wiping or scraping a magnetic separator carrier disc characterised by a driving hub in peripheral contact with the disc, said hub or member carrying a wiper or scraper adapted to contact the face or faces of the disc and thus to remove therefrom any adhesive particles magnetically attached thereto.

In order that this invention may be clearly understood and readily carried into practice, reference may be had to the appended drawings upon which:

Figure 1 illustrates in sectional elevation a magnetic separator having rotary wipers or scrapers in accordance with the present invention.

Figure 2 is a vertical sectional elevation illustrating the wipers or scrapers on each side of the disc and

Figure 3 is a fragmentary view illustrating the precise contact of the blades of the wipers or scrapers with the disc.

In the embodiment illustrated in the drawing *a* indicates the magnetic disc lightly mounted on bearings *a*¹ and disposed so that the lower part of the said disc *a* functions in a restricted passage-way *b*¹ forming part of a container *b* above which is mounted a centrifugal pump *c* for pumping the fluid as may be desired. *d* indicates the hub suitably mounted in bearings *d*¹ and having radial arms *d*² of non-magnetic material each of which carries a rubber strip *d*³ (see Figure 3) which is presented obliquely to the face of the disc *a*. The hub *d* makes frictional contact with the periphery of the disc *a* and is provided with a pulley *d*⁴ which is geared to the motor *d*⁵ by means of a belt *d*⁶. *e* is a trough wherein the radial wipers function and *e*¹

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a chute. In operation the motor sets the hub *d* in rotation which consequently drives the magnetic disc *a* in the restricted passage-way *b*¹ and it will be appreciated that the radial arms have a wiping effect on the upper part of the disc to extract the metal articles which are displaced from the trough *e* into the chute *e*¹. It will be noted the wiper or scraper blades *d*² are brought into contact with the face or faces of the carrier disc and of the magnetic plugs or cores located therein, and thus effect a wiping or rotary sweeping operation which serves to remove the ferrous or other particles from the end faces of the magnets and to transfer these particles into the chute *e* and a reception bin clear of the liquid from which they have been extracted. It will also be noted that the chute *e*¹ and trough *e* carry the motor *d*⁵ at *e*² and the member *e*³*e*¹*e*² is pivoted at *e*³ so that the whole structure *edd* may be lifted away from the disc. Further the weight of the motor ensures an efficient drive between *d* and *a*. *f* is a hood pivoted at *f*¹.

As previously stated the present invention is particularly applicable to the magnetic separator carrier disclosed in my application Serial No. 554,120 and which incorporates the restricted passage-way for the disc.

I claim:

1. A magnetic separator including a rotary magnetic disc and means for rotating and scraping the same, said means comprising, in combination, a rotary scraper having a hub in frictional engagement with the periphery of the disc and two sets of radially extending arms mounted on said hub, one set bearing on each side of said disc, means for rotating said hub, a trough for housing the lower part of said radially armed scraper and a chute connecting with said trough.

2. A magnetic separator including a rotary magnetic disc and means for rotating and scraping the same, said means comprising, in combination, a rotary scraper having a hub in frictional engagement with the periphery of the disc and two sets of radially extending arms mounted on said hub, one set bearing on each side of said disc, resilient scraping strips attached to said arms and presented at an inclination to the face of said disc, means for rotating said hub, a trough for housing the lower part of said radially armed scraper and a chute connecting with said trough.

3. A magnetic separator including a rotary magnetic disc and means for rotating and scraping the same, said means comprising, in combination, a rotary scraper having a hub in frictional

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engagement with the periphery of the disc and two sets of radially extending arms mounted on said hub, one set bearing on each side of said disc, resilient scraping strips attached to said arms and presented at an inclination to the face of said disc, means for rotating said hub, a trough for housing the lower part of said radially armed scraper and a chute connecting with said trough, a pivot for said chute, an extension on said trough, a motor mounted on said extension and a mounting for said hub on the upper part of said trough.

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