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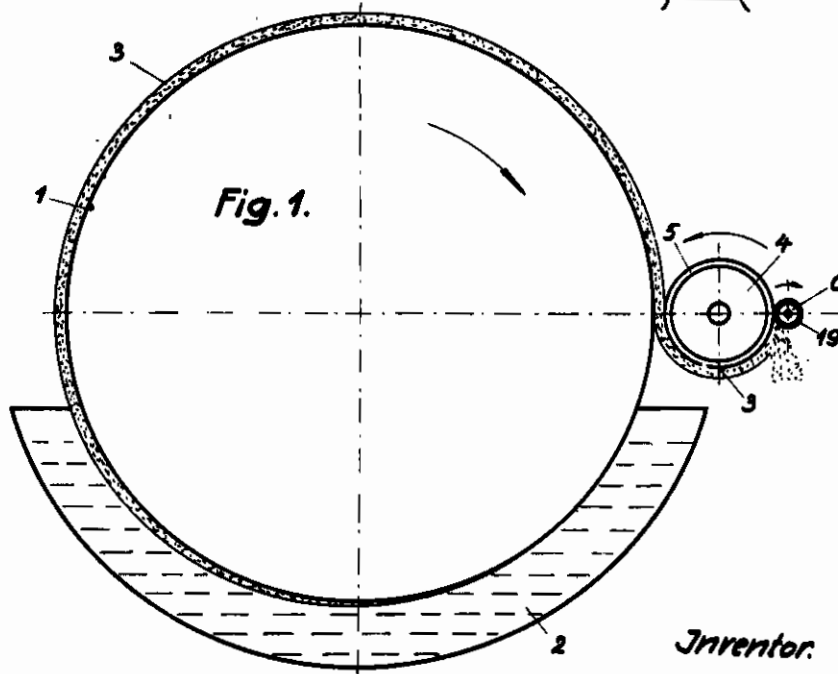
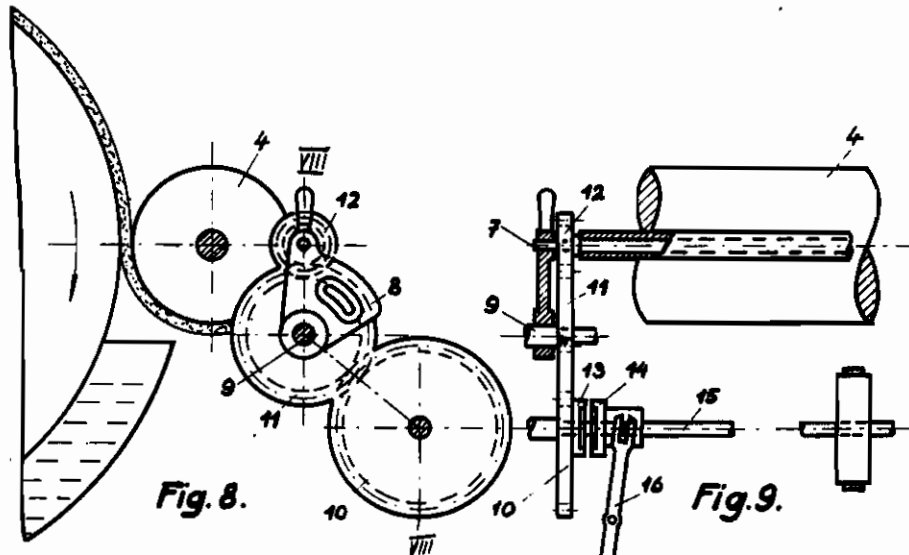
TAKING-OFF DEVICES FOR SUCTION FILTERS

Filed April 12, 1937

Serial No.

136,429

2 Sheets-Sheet 1



Inventor.

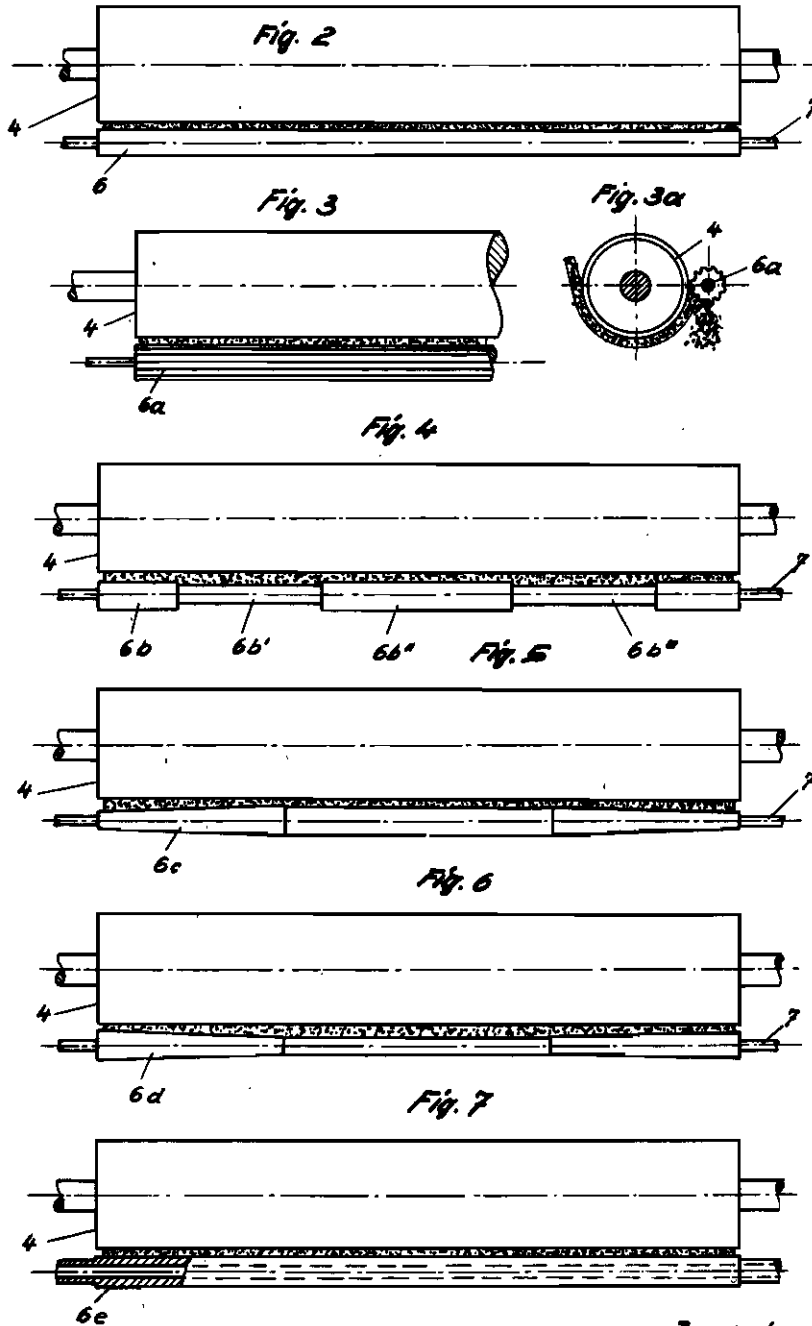
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# ALIEN PROPERTY CUSTODIAN

## TAKING-OFF DEVICES FOR SUCTION FILTERS

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Application filed April 12, 1937

This invention relates to a device for taking off the filter cake from a couch roller cooperating with a suction filter.

In paper making, the filter cake formed on a suction filter is taken off by a couch roller which is either plain or provided with elevations and from which the cake is removed by means of strippers, scrapers, etc. This method is open to the objection that a portion of the cake collects on the back of the scraper and is finally taken off from the couch roller in larger lumps. If the scraper is, moreover, applied closely to the couch roller usually consisting of rubber or some other elastic material, damages may occur which interfere with proper taking off. This risk is particularly great if a couch roller is employed which is fitted with elevations and depressions.

The invention completely eliminates the defects mentioned by employing an auxiliary roller cooperating with the couch roller for removing the filter cake therefrom. The auxiliary roller preferably has a much smaller diameter than the couch roller and is either stationary, or rotates intermittently, or revolves at considerably greater circumferential speed than the couch roller in the same or opposite direction. The auxiliary roller may be provided with special driving means and variably adjustable relative to the couch roller.

Like the couch roller, the auxiliary roller may have elevations and depressions in the manner of a fluted roller. It may consist of several parts, constructed as plain or hollow shaft, or taper towards its ends. It is particularly advantageous to form the couch or auxiliary roller from elastic material or to provide a coating therefor from such material.

By way of example, the invention is illustrated in the accompanying drawing, in which

Figure 1 is a section of a device according to the invention, the parts being shown in diagram;

Fig. 2 is a top view of the auxiliary roller cooperating with the couch roller according to Fig. 1;

Figs. 3 to 7 show other forms of the auxiliary roller;

Fig. 8 is a view of the drive and arrangement of the auxiliary roller; and

Fig. 9 is a view of the drive on the line VIII—VIII, of Fig. 8.

Referring to the drawing:

The filter drum 1 rotates in the direction of the arrow in the trough 2 and collects on its circumference the filter cake 3. Before the drum 1 carries out a second revolution in the trough 2

the filter cake 3 is taken off by a couch roller 4 having an elastic cover 5 and rotating in a direction opposite to that of the drum 1. The cover may consist of rubber, rubber-like horse-hair, sponge rubber, soft felt, etc. The couch or taking-off roller 4 may be plain, fluted, etc. and rotates at the same circumferential speed as the filter drum 1.

Removal of the filter cake 3 from the couch roller 4 is effected by the auxiliary roller 6 disposed on the shaft 7 in a member 8 movably disposed on a shaft 9, whereby it becomes possible to vary the distance between the auxiliary roller 6 and the couch roller 4. The auxiliary roller 6 is driven by means of the toothed wheels 10, 11, 12, the wheel 10 being adapted to be engaged and disengaged by a clutch 13, 14. The clutch member 14 is longitudinally displaceably arranged on the shaft 15 and can be manually or automatically controlled by the rods 16, 17. The drive for the couch roller 4 and the filter drum 1 is not shown, as it is of no importance for the invention.

The auxiliary roller 6 for taking off the filter cake from the couch roller 4 may either stand still, rotate more slowly or quickly than the couch roller or carry out intermittent motions. Speed and direction of rotation of the auxiliary roller 6 are regulated by exchanging the wheels 10, 11, 12. The roller 6 is stopped by disengaging the clutch 13, 14, and intermittent drive of the roller is brought about by a corresponding engaging and disengaging operation of the clutch, for which purpose the rod 17 of the clutch can be connected with a gear box 18.

In the construction shown in Fig. 1 the auxiliary roller 6 is a smooth cylindrical shaft. Fig. 3 shows a fluted auxiliary roller 6a, and in the embodiment according to Fig. 4 the auxiliary roller 6b is formed of the members 6b', 6b'', 6b''', etc. which may differ in diameter, be offset, etc.

The construction according to Fig. 5 employs an auxiliary roller 6c weakening towards the ends, whilst the auxiliary roller 6d according to Fig. 6 increases in thickness towards the ends and has a reduced diameter in its center.

As indicated in Fig. 7, the auxiliary roller 6e may be constructed as hollow shaft, possibly connected with a piping supplying a heating medium, or, as shown in Fig. 9, it is provided with an elastic cover 19. It is further possible to construct the auxiliary roller entirely from elastic material.

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