

F. KEMPTER.

APPARATUS FOR WASHING CAOUTCHOUC AND SIMILAR SUBSTANCES.

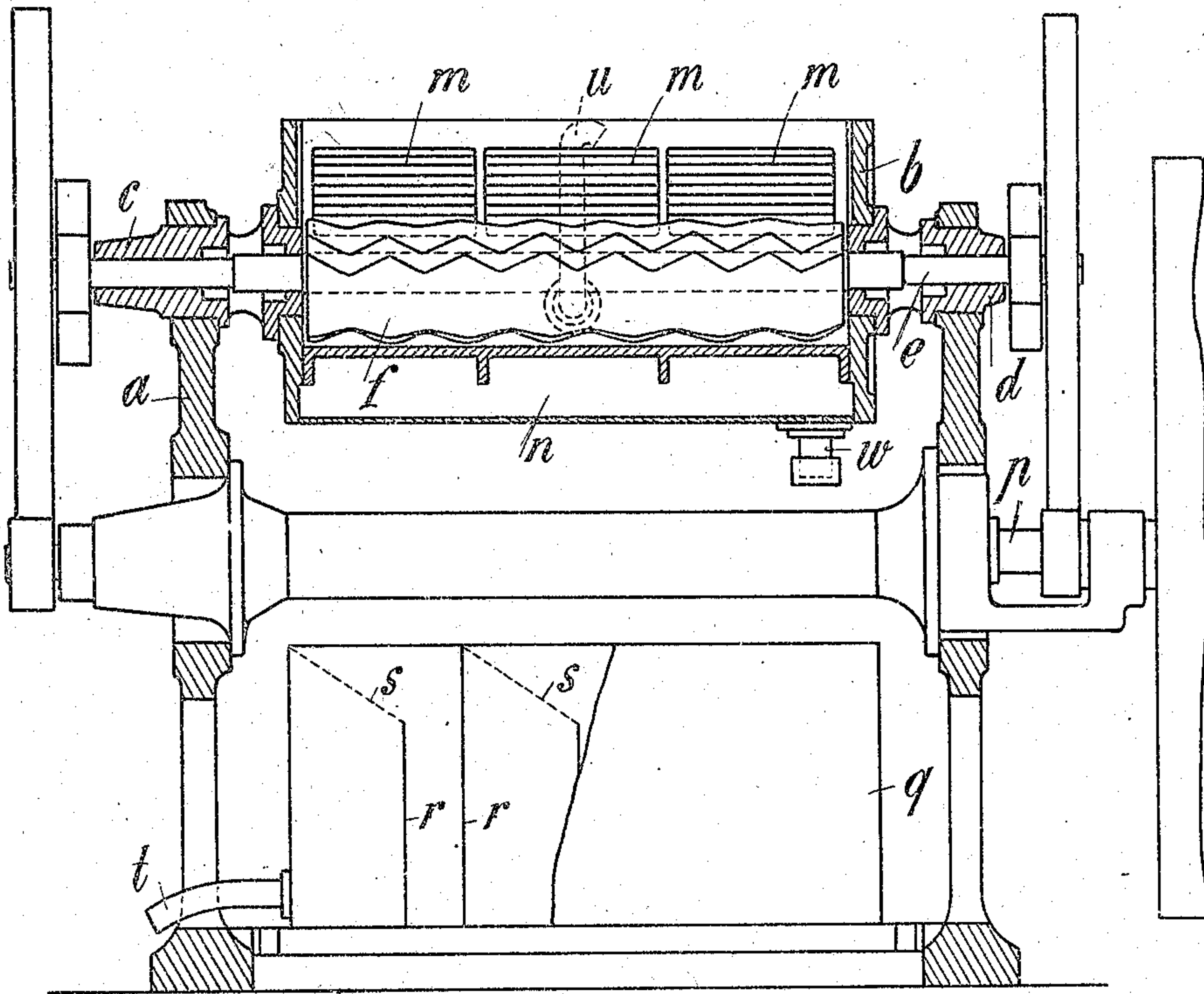
APPLICATION FILED NOV. 7, 1907.

936,635.

Patented Oct. 12, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

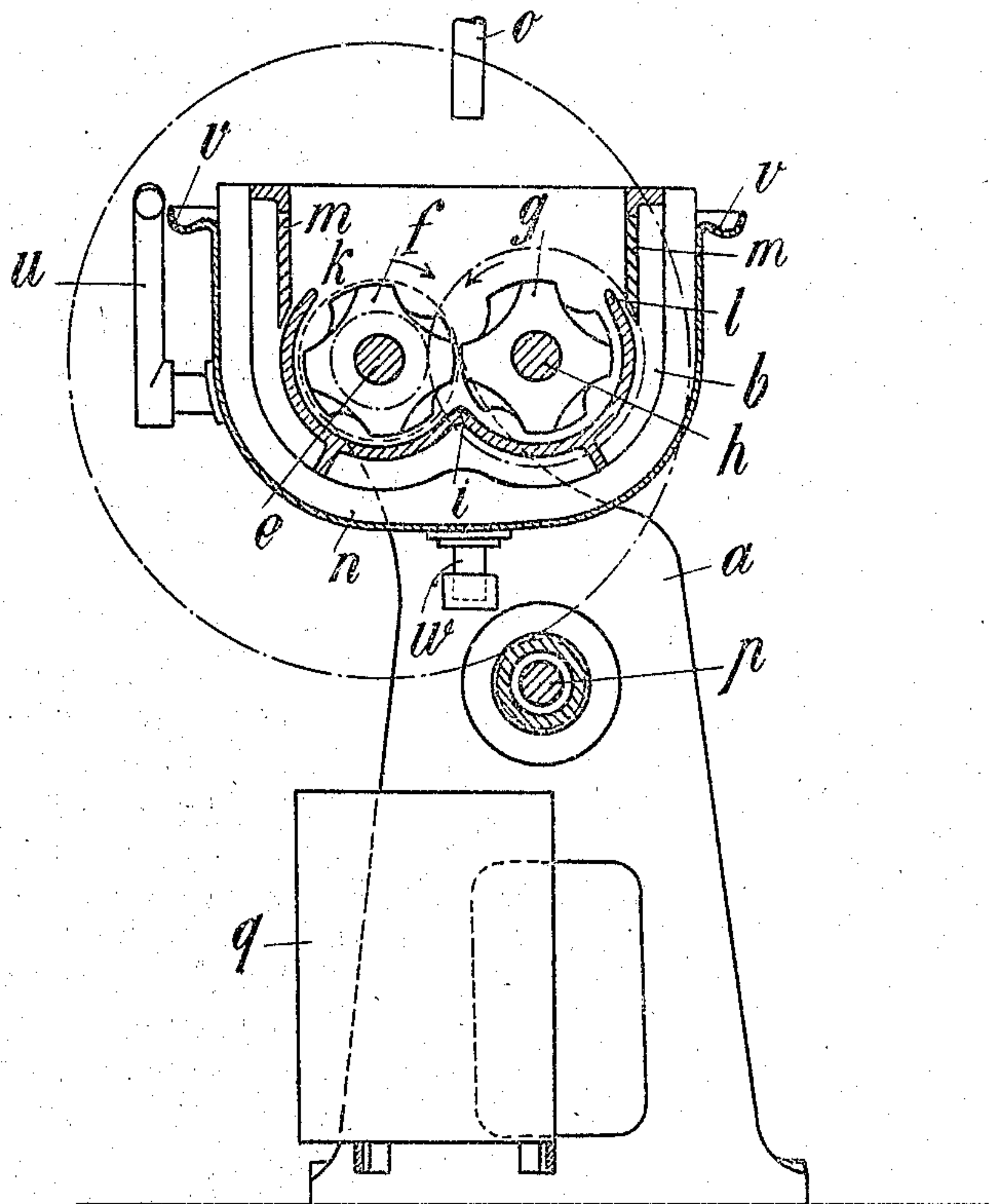


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936,635.

*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

FRITZ KEMPTER, OF STUTTGART, GERMANY.

APPARATUS FOR WASHING CAOUTCHOUC AND SIMILAR SUBSTANCES.

936,635.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed November 7, 1907. Serial No. 401,157.

*To all whom it may concern:*

Be it known that I, FRITZ KEMPTER, a subject of the German Emperor, residing at Stuttgart, Germany, have invented new and useful Improvements in Apparatus for Washing Caoutchouc and Similar Substances, of which the following is a specification.

This invention relates to improved means for washing caoutchouc and similar substances in such a manner that the material is thoroughly cleaned and disintegrated.

In the accompanying drawings: Figure 1 is a longitudinal section of an apparatus embodying my invention, and Fig. 2 a cross section thereof.

A washing trough or tank *b*, is rotatably mounted in a frame *a*. The trunnions *c* and *d* upon which the trough may be swung when it is to be emptied, receive the shaft *e*, of one of two crushing rollers *f*. The second crushing roller *g*, is mounted on a shaft *h*, which is arranged parallel to shaft *e*. The crushing rollers are preferably cruciform in cross section, so as to have a suitable number of integral longitudinal crushing ribs and intermediate recesses. These recesses are corrugated longitudinally and should not be made unduly deep, as otherwise the mass would settle therein and would not be sufficiently cleaned. The bottom of trough *b*, is provided beneath each roller with a corresponding bulge, the two adjoining walls of said bulges forming a saddle *i*, intermediate the rollers. From the sides of trough *b*, project inwardly a pair of flanges or deflectors *k*, *l*, which overlap rollers *f*, *g*, being arranged somewhat above the axes of said rollers. Above these flanges the sides of the trough are perforated or slotted, the slots being separated by intermediate inclined grate bars *m*. The distance of the lowermost grate bar from the flange *k*, or *l*, is preferably greater than that of the other bars from each other, in order to permit the escape of larger foreign bodies beneath the same. The trough *b*, is surrounded at its sides by a jacket *n*, which is provided at its top with a groove or channel *v*. The front walls of the trough may also be provided with openings and gratings, in which case the jacket *n*, also surrounds such front walls. A pipe *o*, is provided above trough *b*, through which water is supplied to the latter. The crushing rollers *f*, *g*, are actuated

from power shaft *p*, by a suitable transmission.

Below jacket *n*, a trough *q*, is mounted on the frame *a*, into which discharges a pipe *w*, which may be closed at the bottom. As shown in Fig. 1, trough *q*, is provided with baffle plates *r*, screens *s*, and an outlet pipe *t*, at the end opposite pipe *w*. A pivoted pipe *u*, communicating with jacket *n*, serves to adjust the water level in such jacket and in trough *b*.

The drawing shows two crushing rollers, but the number of such rollers may obviously be varied.

The operation is as follows: The mass to be treated is placed into trough *b*, and water of a proper temperature is introduced, preferably continuously, through pipe *o*. The rollers *f*, and *g*, are, by shaft *p*, rotated in opposite directions, as indicated by the arrows Fig. 2. The mass is thus drawn between the rollers to fill out the recesses thereof and then passes up along the walls of the trough. By the combined cutting and squeezing action of the rollers, the mass is thus continuously opened up, while any foreign bodies are removed from the same and pass first into the water contained in the trough *b*. With the further movement of the rollers, the mass is raised to pass along the lower sides of flanges *k*, *l*, while the heavier foreign bodies divided out slide downward along the upper sides of such flanges to escape through grating *m*, into jacket *n*. Specifically lighter foreign bodies, such as leaves, pieces of bark, etc., float to the top of jacket *n*, and collect in channel *v*, from which they may be removed by raising the water level and thus floating them off. Finely divided foreign bodies of greater specific density, such as sand, are driven to the top of trough *b*, by the continuous agitation of the water in said trough and escape through the gratings *m*, into jacket *n*, where they sink to the bottom, as the water is here quiescent. The flanges *k* and *l*, cause the heavier foreign bodies, such as coarse sand, stones, etc., to be easily removed from the washing trough and they further prevent the clogging of gratings *m*. They therefore act simultaneously as stone catchers and as rejecting means.

At the center of the trough the rising mass is again subjected to the action of the rollers, to be again squeezed and reduced, the operation being thus continued until the desired



degree of reduction and cleanliness is obtained.

All foreign bodies fall from jacket *n*, through outlet *w*, into trough *q*, without coming into contact with the cleaned material.

It may happen that sound and useful parts of the mass may be floated off with the foreign bodies, which are regained by baffle plates *r*, and screens *s*. The water from jacket *n*, flows through coarse screen *s*, to here deposit the larger foreign bodies and useless parts. It then passes around the second baffle *r*, and through a finer screen *s*, to here deposit the finer impurities, and finally leaves the trough through pipe *t*. The mass collected on screens *s*, may be conveyed back into trough *b*, for a second treatment.

I claim:

1. A device of the character described, comprising a crushing roller having a series of integral longitudinal ribs and longitudinally corrugated recesses between said ribs, and a tank having a bulged bottom section concentric to the roller.

2. A device of the character described, comprising a crushing roller having a series of integral longitudinal ribs and longitudinally corrugated recesses between said ribs, a tank inclosing said roller and having a bulged bottom section which is concentric to

the roller, said tank being provided with upper outlet openings, and an inwardly extending flange partly overlapping the roller and arranged below said openings.

3. A device of the character described, comprising a tank, a crushing roller mounted therein, a water supply pipe opening into the tank, a jacket surrounding the tank and communicating therewith, a discharge pipe at the bottom of the jacket, a trough below said discharge pipe, and partitions and screens within the trough.

4. A device of the character described, comprising a tank, an inclosed crushing roller, and a jacket surrounding the tank and communicating therewith above the roller, substantially as specified.

5. A device of the character described, comprising a crushing roller, an inclosing tank having an inwardly extending flange that overlaps the roller, a jacket surrounding the tank, and grated overflow openings that connect the tank with the jacket above the tank-flange, substantially as specified.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

FRITZ KEMPTER.

Witnesses:

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