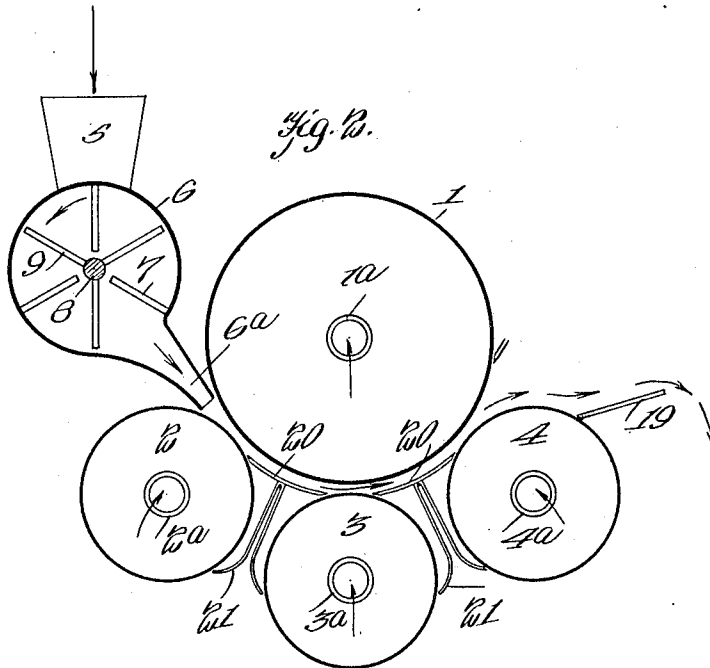
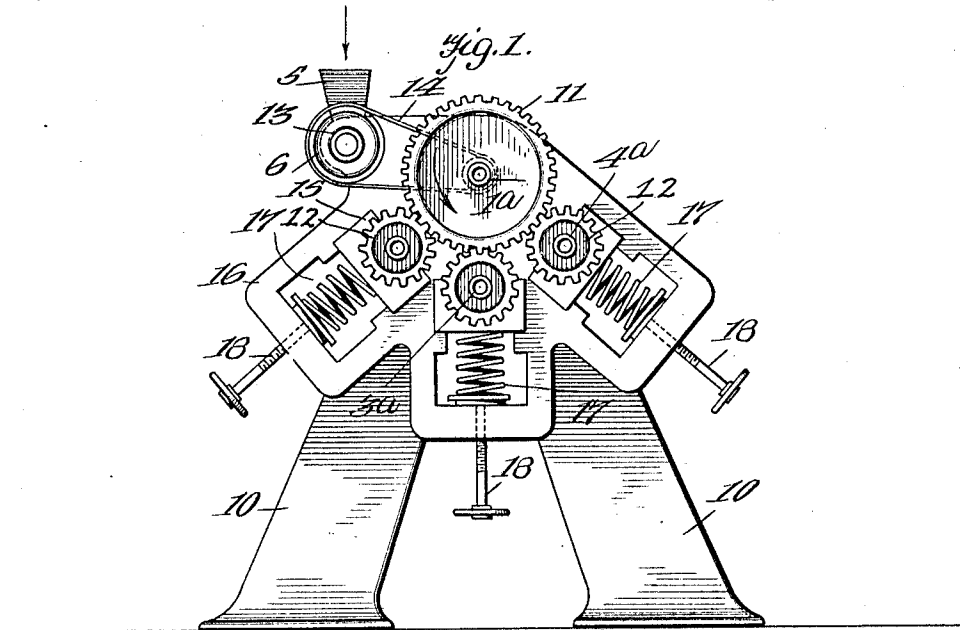


C. BERTINA & J. WALTERS.
MACHINE FOR TREATING TANKAGE.
APPLICATION FILED JULY 12, 1912.

1,055,298.

Patented Mar. 4, 1913.

2 SHEETS—SHEET 1.



WITNESSES
C. M. Callaghan
Amos W. East

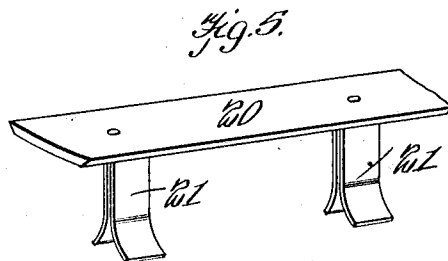
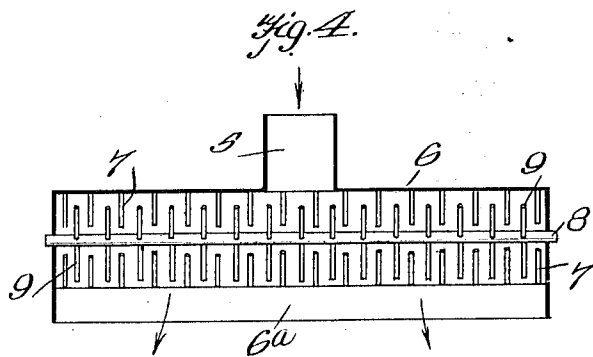
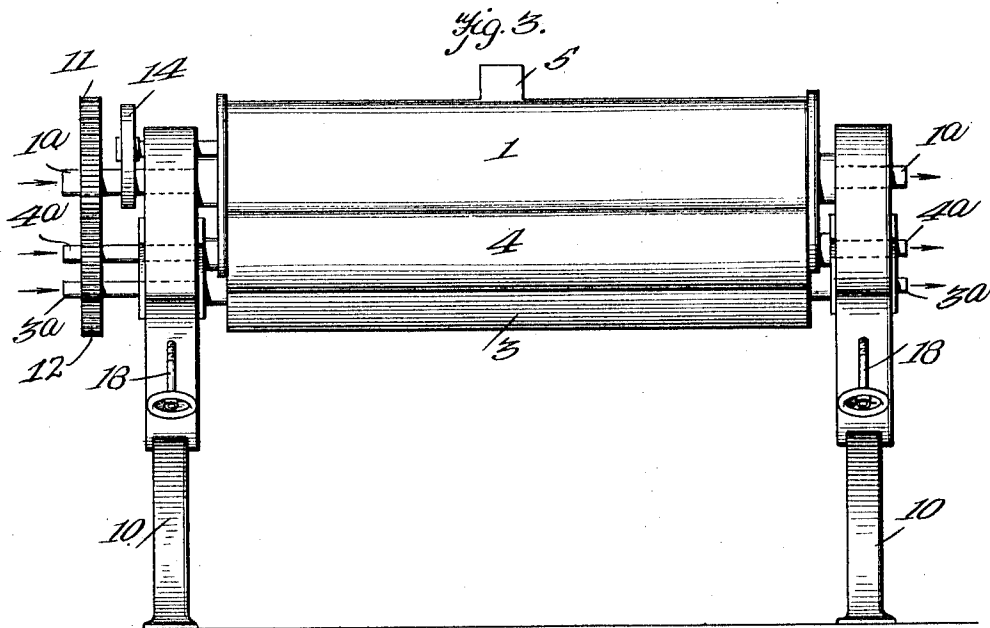
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UNITED STATES PATENT OFFICE.

CHARLES BERTINA AND JOHN WALTERS, OF CALGARY, ALBERTA, CANADA.

MACHINE FOR TREATING TANKAGE.

1,055,298.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed July 12, 1912. Serial No. 709,005.

To all whom it may concern:

Be it known that we, CHARLES BERTINA and JOHN WALTERS, citizens of the United States, and residents of Calgary, in the Province of Alberta and Dominion of Canada, have invented an Improved Machine for Treating Tankage, of which the following is a specification.

By the usual method, tankage is pressed hydraulically to eliminate the major part of its liquid content and obtain a comparatively dry product. This method is, however, slow and expensive, besides requiring much labor that is hard, disagreeable, and unhealthful.

We have devised an improved substitute consisting of a machine which effects a better result more speedily and with greater economy of labor. The tankage or other similar refuse material is first fed into a toothed cylinder wherein it is disintegrated and reduced to a general uniformity and thoroughly mixed. From such cylinder, the material thus cut up is passed between hollow rolls or drums provided with hollow shafts through which steam is introduced for heating. In the course of the passage of the material between the rolls, it is supported and guided by devices which also prevent its escape downward between the lower rolls and at the same time scrape the latter. The combined guides and scrapers are held in position by spring clamps extending down between adjacent rolls. The shafts of the several rolls are supported and journaled in blocks which have an adjustable spring support that allows them to yield and thus accommodate themselves to the varying thicknesses of the material passing through the machine. The pressure of the lower rolls against the upper fixed roll may be varied by a screw adjustment.

The details of construction, arrangement, and operation of parts are as hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is an end view of the machine. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a side view of the machine. Fig. 4 is a longitudinal section of the disintegrator and mixer. Fig. 5 is a perspective view of one of the guides and scrapers detached.

In Fig. 2, the numeral 1 indicates a large hollow roll or drum, and 2, 3, and 4 smaller

hollow rolls or drums arranged below the larger one and concentrically therewith, but separated therefrom by a narrow space through which the material to be pressed passes. The tankage or other material is fed into a hopper 5 and passes into a cylinder 6 provided interiorly with radial teeth 7—see Fig. 4. A shaft 8 passes through the longitudinal center of the cylinder 6, and the inner ends of the teeth 7 are separated from it. This shaft is provided with radial teeth 9, which, as shown in Fig. 4, are arranged to intervene the fixed teeth 7 of the cylinder. The latter is provided on the lower side with a spout 6^a extending its entire length and directed into the space between the large roll 1 and the first roll of the series 2, 3, and 4. The several rolls or drums, together with the disintegrator and mixer already described, are supported in duplicate frames provided with bifurcated legs 10. The hollow shaft 1^a of the fixed drum extends laterally, as shown in Fig. 3, and is provided with a large spur gear 11. The shafts 2^a, 3^a, and 4^a of the respective smaller drums are also extended laterally and provided with smaller gears 12 which mesh with the larger gear 11, as shown in Fig. 1. A motor of some suitable kind is, in practice, mounted on the frame and drives the shaft 8 of the disintegrator. On such shaft, as shown in Fig. 1, a pulley or sprocket wheel 13 is mounted, and a belt or sprocket chain 14 runs therefrom to a corresponding pulley or sprocket on the shaft 1^a of the large drum. Thus, rotation being imparted to the shaft of the larger drum, it is apparent that similar rotation at a more rapid rate will be transferred to the smaller drums 2, 3, and 4, through the medium of the gearing. The shafts of the smaller drums 2, 3, and 4 are journaled in blocks 15 which are arranged in guideways formed in slotted portions 16 of the frame. These blocks rest on spiral springs 17 to which screws 18 provided with hand-wheels are applied for holding the gears of the smaller rolls in firm engagement with the large gear 11. The direction of rotation of the several drums is indicated by arrows in Fig. 2.

The material fed from the disintegrator and mixer 6 enters the space between the large roll and the smaller one 2, then successively between the large roll 1 and the

smaller ones 3 and 4, and is finally delivered, pressed and dried, at the point 19, where a trough or other receptacle may be provided for its reception. It is obvious that the material will tend to cling to the rolls, especially the smaller ones, and that it would be carried down between the latter but for the intervention of some device. We have contrived and applied a combined guide and scraper whose construction, arrangement, and operation are as follows: As shown in Figs. 2 and 5, the device consists of an oblong rectangular metal plate 20 whose edges are preferably slightly beveled. To the under side of the same are attached two pairs of spring clasps 21, the same being formed of strips of spring metal extending downward from the plate and having their lower ends curved outwardly from each other. This device is arranged, as shown in Fig. 2, between each of two adjacent rolls; that is to say, between 2 and 3 and 3 and 4. The plate 20, which is preferably slightly curved, lies with its edges resting upon the rolls while the clasps 21 extend down between them, and their terminals bear against the rolls, as shown, and thus serve to hold the device in working position. It will be seen that the plates 20 form what may be termed bridges between adjacent rolls, so that a continuous passageway is provided for the material as it passes from the disintegrator and between the rolls. At the same time the edges of the plates 20 scrape the surfaces of the smaller rolls.

The several rolls are heated by steam which is introduced through their hollow shafts by means of pipes (not shown) which are, in practice, suitably coupled therewith. The tankage which is delivered into the cylinder 6 is a semi-liquid mass, and as it passes between the rolls, it is pressed and heated simultaneously and continuously, until it leaves the machine at the point 19 in a measurably dry and solid condition.

It is apparent that the machine is adapted to operate with great facility on tankage and similar refuse material and that no handling of the material or other manual manipulation is required, save, it may be, to effect its deposit in the hopper 5 and to remove it from the receptacle into which it is finally delivered. It may, however, be delivered upon a conveyer by which it will be removed to a greater or less distance and delivered into cars or wagons.

What we claim is:—

1. An apparatus for the purpose specified comprising a supporting frame, a large hollow roll and a series of smaller hollow rolls arranged concentrically with the larger roll but separated therefrom by a small space, and a disintegrator and mixer consisting of a hollow cylinder arranged adjacent and parallel to the large roll and provided with a laterally and downwardly projecting spout extending its entire length and projecting into the space between the large roll and the first of the series of smaller rolls, all of said rolls being geared together, as described.

2. In a machine for the purpose specified, the combination with an upper roll and a series of smaller rolls arranged concentrically beneath it, of a device consisting of a guide and a scraper whose edges rest in contact with adjacent smaller rolls and having a projecting part which intervenes such rolls and serves to hold the guide in place, as described.

3. In a machine for the purpose specified, the combination with an upper roll and a series of other rolls arranged below it, of a device for guiding the material passing between the rolls, the same being a plate which bridges the space between adjacent smaller rolls, and spring clasps attached thereto and projecting downward between adjacent rolls, their lower ends being turned outward to bear against the rolls, as described.

4. The combination with an upper roll and a series of smaller rolls arranged below it, of a combined guide or scraper consisting of a plate which bridges the space between adjacent smaller rolls, and its edges adapted to bear upon the surface of said rolls, and clasps comprising spring arms attached to the plate and projecting downward between adjacent rolls and having outwardly turned free ends which bear against the rolls, as described.

5. The combined guide and roll scraper, comprising a rectangular plate having spring arms projecting downward and their free ends turned outward, as described.

CHARLES BERTINA.
JOHN WALTERS.

Witnesses:

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E. A. DUNBAR.