

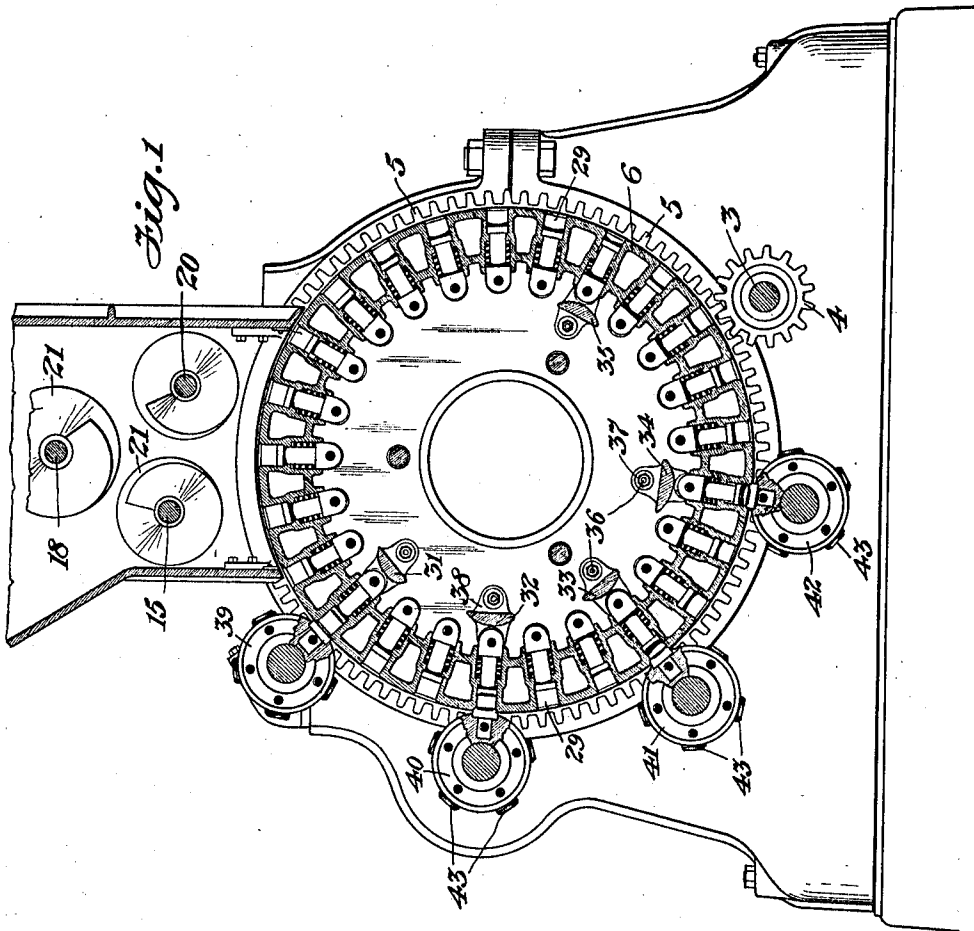
C. DE LUKACSEVICS.
ROTARY BRIQUET MACHINE.

APPLICATION FILED DEC. 8, 1905. RENEWED FEB. 11, 1909.

1,004,050.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 1.



WITNESSES:

Thos H. Brown
Wm. A. Brown,

INVENTOR

Charles de Lukacsevics

BY

George H. Stockton
ATTORNEY

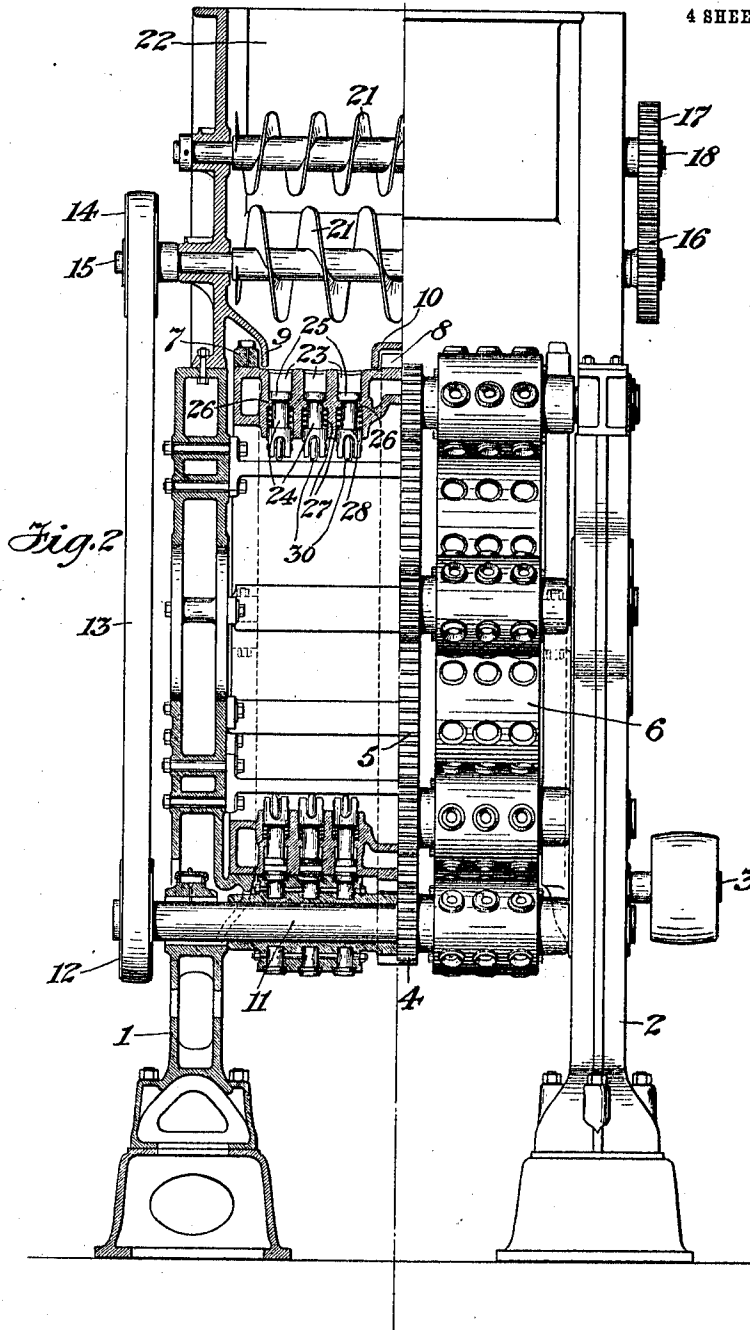
C. DE LUKACSEVICS.
ROTARY BRIQUET MACHINE.

APPLICATION FILED DEC. 8, 1906. RENEWED FEB. 11, 1909.

1,004,050.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 2.



WITNESSES:

Thos. D. Brown
Wm. A. Brown

INVENTOR

Charles de Lukacsevics

BY

Guy H. Stock
ATTORNEY

C. DE LUKACSEVICS.
ROTARY BRIQUET MACHINE.

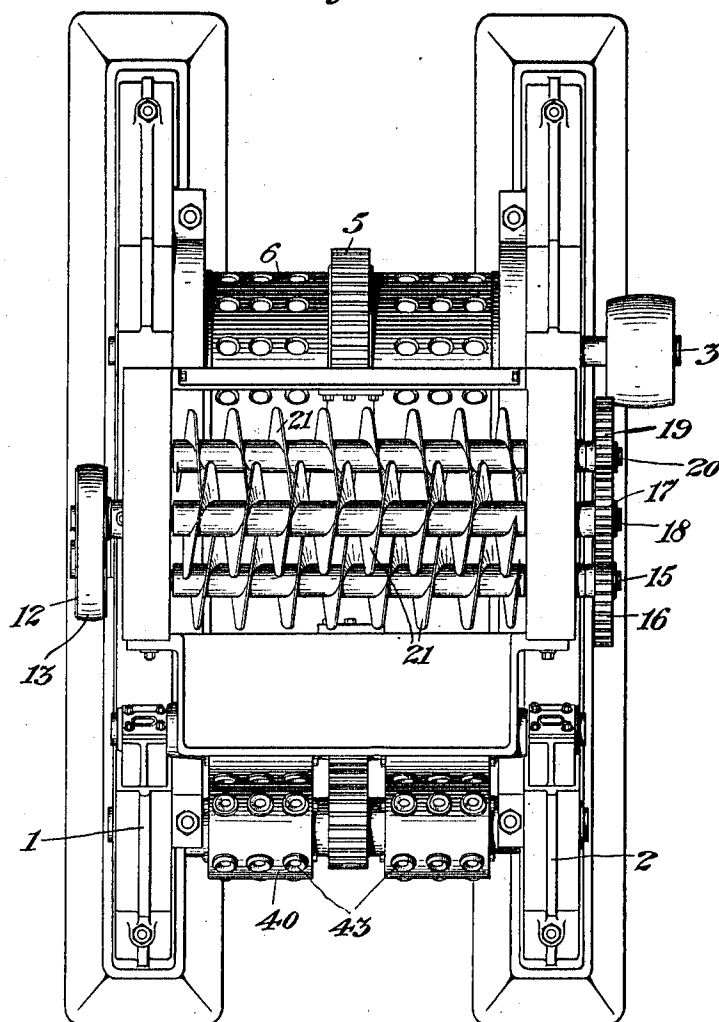
APPLICATION FILED DEC. 8, 1905. RENEWED FEB. 11, 1909.

1,004,050.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 3.

Fig. 3



WITNESSES:

Thos. H. Brown

Wm. A. Brown.

INVENTOR

Charles de Lukacsevics

BY

Eng. H. Seckman

ATTORNEY

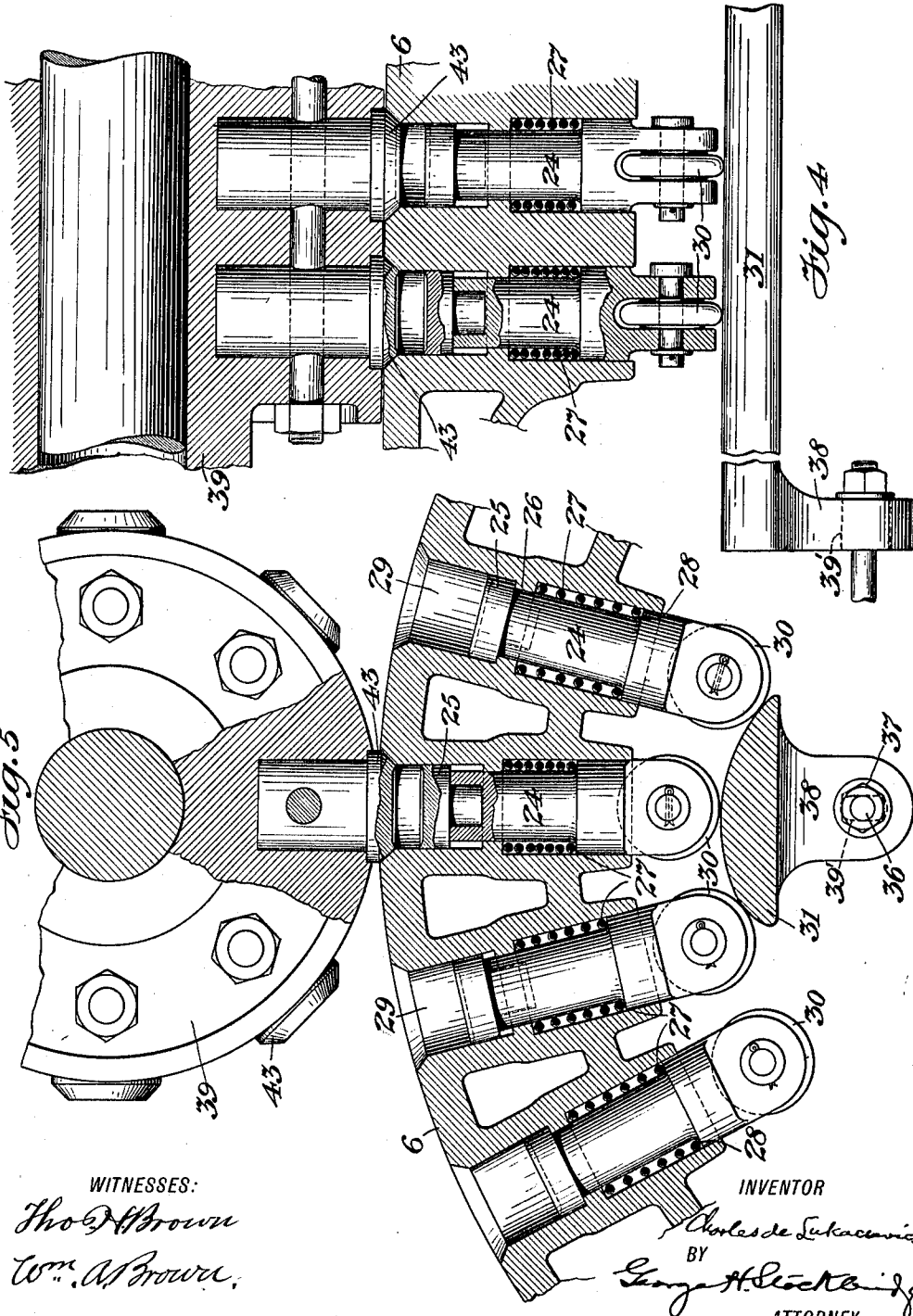
C. DE LUKACSEVICS.
 ROTARY BRIQUET MACHINE.

APPLICATION FILED DEC. 8, 1905. RENEWED FEB. 11, 1909.

1,004,050.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 4.



WITNESSES:
Thos. D. Brown
Com. A. Brown

INVENTOR
Charles de Lukacsevics
 BY *George H. Leachman*
 ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES DE LUKACSEVICS, OF NEW YORK, N. Y., ASSIGNOR TO GEORGE W. MORGAN, JR.,
OF NEW YORK, N. Y.

ROTARY BRIQUET-MACHINE.

1,004,050.

Specification of Letters Patent.

Patented Sept. 26, 1911.

Application filed December 8, 1905, Serial No. 290,885. Renewed February 11, 1909. Serial No. 477,451.

To all whom it may concern:

Be it known that I, CHARLES DE LUKACSEVICS, a citizen of the United States, and resident of New York, county of New York, State of New York, have invented certain new and useful Improvements in Rotary Briquet-Machines, of which the following is a specification.

In an application for Letters Patent of the United States executed on even date herewith, bearing the Serial Number 290,886, I have shown and described a rotary briquet machine in which a stationary cam device located inside a drum or cylinder carrying formers is provided with eccentrics of varying degrees of eccentricity cooperating with the inner ends of the formers, while other formers located in cylinders outside the main drum or cylinder cooperate with the first named formers to concentrate charges in a series of dies passing successively between the formers. In the construction disclosed in the said concurrent application, the rotating drum or cylinder is carried upon a web or spider on a suitable shaft, while the cam device with its various eccentrics is secured to the frame of the machine and remains stationary during the operation of the apparatus. The described drum or cylinder carries a series of formers, the several series being arranged successively within the drum or cylinder so that the formers are disposed in banks of two or more running lengthwise of the cylinder and the several banks are arranged in series one behind the other around the circumference of the cylinder. The driving power is applied to the apparatus through the shaft on which the drum or cylinder is mounted, and the several formers carried by the drum are brought at their inner ends into contact successively with the various eccentrics on the stationary cam device, the first eccentric being of comparatively low eccentricity, the second of greater eccentricity and so on until a final eccentric of a high degree of eccentricity is reached by the inner ends of any bank of formers, whereupon the final pressure is applied which gives to the charge its ultimate concentration and leaves it in the form of a briquet having the desired density. Beyond this point an eccentric of still greater eccentricity is applied for ejecting the completed briquets at the proper point.

The present invention is differentiated from that described above and disclosed in the concurrent application in that the rotating drum or cylinder is not mounted upon a rotating shaft having a web or spider connection with the drum or cylinder but is mounted within suitable bearings in the frame of the apparatus and is provided with suitable gears connected with a driving shaft whereby the hollow drum or cylinder carrying the formers is rotated without connection with any internal shaft. At the same time, the cam device above described and disclosed in said concurrent application is dispensed with as a unitary piece of apparatus and is replaced by a series of bridges occupying an eccentric relation with respect to the center of the drum or cylinder whereby the formers within the cylinder are successively urged outward at the proper point for cooperation with corresponding formers on the outside cylinders or drums, whereas for each operation by means of any given bridge, the formers return to their innermost position instead of being urged constantly against the charges in the dies by a force equal to that represented by each eccentric in the cam device disclosed in the concurrent application. Thus the several bridges in the present application move the formers in each instance from an extreme inward position to successively higher and higher outward positions, and the whole main drum or cylinder structure is independent of any internal shaft connection. It will be understood that the several bridges are themselves adjustable so as to secure any desired degrees of compression ranging from a small original compression to a large final compression, each eccentric being thus adjustable so as to graduate in any desired manner the compression at successive points in the rotation. As before, there is a special device for ejecting the completed briquets, this device, being in the present instance, a separate bridge supported like all the rest in the frame of the machine and located in a free space within the main drum or cylinder.

It will be understood that in connection with the forward and backward play of the several formers within the main drum or cylinder, means are provided for preventing excessive movement of the formers in an inward direction as will be explained in

connection with the special description of the drawing.

The present invention is illustrated in the accompanying drawings, in which—

5 Figure 1 is a view of the apparatus partly in end elevation and partly in section; Fig. 2 is a front elevation of the apparatus, partly in section; Fig. 3 is a plan view; and Figs. 4 and 5 represent details.

10 The frame of the machine is composed of standards, 1 and 2, in which are mounted suitable shafts as will presently appear. The driving shaft is shown at 3, the same being provided with a pinion, 4, engaging with a
15 gear-wheel, 5, on the main drum or cylinder, 6. The said drum or cylinder is provided with lugs or extensions, 7 and 8, located inside cap-pieces, 9 and 10 attached to the frame of the machine and serving as guides
20 or journals for the main drum or cylinder. By the rotation of the main drum or cylinder through the driving shaft 3, as described, the shaft, 11, is rotated, the same carrying a pulley, 12, connected by a belt, 13, with a
25 pulley, 14, on a shaft 15. The latter shaft is provided at its opposite end with a pinion, 16, engaging with a pinion, 17, on a shaft, 18, and with a pinion, 19, on a shaft, 20. The shafts 15, 18 and 20 are provided
30 with Archimedean screws, 21, 21, or similar devices, for mixing the material which is to be compressed by the machinery described herein. These screws, fans, or other equivalent devices are mounted in a hopper, 22,
35 into which the material to be compressed is dropped, poured or deposited in any suitable way.

The features of the mixer are not necessarily novel in themselves, but they are
40 simply adapted to mix the materials in a suitable shape for being dropped into dies below the mixing screws, fans or wipers, it being assumed that a suitable binder is present, if necessary, in order to assist in the
45 proper compacting or compressing of the charges in the dies under the operation of the machine.

The dies 23, 23 are formed near the outer periphery of the drum or cylinder 6 and they
50 are so located with relation to the bottom of the hopper 22 that the material dropped into the hopper and mixed by the mixing device will fall into the dies and not be permitted to clog the machinery. The means
55 for preventing the clogging are the caps 9 and 10, it being understood that similar caps appear at the right in Fig. 2 where the apparatus is shown in elevation as well as at the left hand in the same figure where the
60 apparatus is shown in section.

Below the dies in the main cylinder 6 are plungers or formers, 24, supplied with heads, 25, 25, which are adapted to rest in the innermost position of the formers upon
65 flanges, 26, 26, formed in the drum or cylinder.

Underneath the said flanges are spiral springs, 27, 27, which bear against the flanges and also against shoulders, 28, 28, on the formers or plungers 24. The springs 27, 27 tend to press the formers toward their innermost position whereby the heads 25, 25 are normally held firmly against the flanges 26, 26.

Beyond the heads 25, 25, toward the outer periphery of the cylinder are dies, 29, 29, into which the material to be pressed drops from the mixing devices already described. By referring to Fig. 2 it will be seen that the falling of the material takes place without danger of clogging the machinery.

At the inner ends of the formers or plungers 24 are rollers, 30, which are adapted to strike during the rotation of the main drum or cylinder upon a series of bridges, 31, 32, 33, 34 and 35, successively. These bridges are adjustably mounted in the frame of the machine, being supported upon rods, 36, and held in place by suitable nuts, 37. In the hub, 38, on which each bridge is mounted, I may provide a slot, 39', whereby any one of the bridges may be adjusted radially so as to project more or less into the path of movement of the inner ends of the plungers 24. Thus the compression at any given point along the line of rotation where such compression is provided for by means of the bridges can be completely regulated.

Around the surface of the main drum or cylinder are smaller drums or cylinders, 39, 40, 41 and 42. These drums are each of them provided with formers, 43, 43, arranged in rows and projecting somewhat beyond the periphery of the drums. The shape of these formers 43 is clearly shown in Figs. 4 and 5, whereby it is seen that the outer ends of the said formers enter and fit beveled openings at the mouth of the dies 29. The several cylinders, 39, 40, 41 and 42 are rotated by any suitable gearing, say, by the gear 6 on the main drum cooperating with gears on the smaller drums or cylinders, as illustrated in Fig. 2. For convenience, I have illustrated three formers arranged in a row upon the smaller cylinders cooperating with a similar number of dies and formers in the main cylinder and I have shown in Figs. 2 and 3 two sets of smaller drums and cylinders arranged in pairs on the several shafts. In Fig. 2 some of these drums are removed while in Fig. 3 some of them do not appear by reason of the character of the view chosen. Now, by arranging the bridges 31, 32, 33, 34 and 35, so that each successive bridge in series named is slightly nearer to the corresponding smaller cylinder than each previous bridge is, I am able to secure successive compressions of the material or charges in the dies so that after each compression the charge will be more

and more compressed, the final effort of compression being made through the medium of the bridge 34. The bridge 35 is not utilized for compression purposes, but simply for ejecting the completed briquet at the point indicated in Fig. 1. The briquets thus ejected may be collected in any suitable receptacle (not shown).

I claim as my invention:

10 1. In a rotary briquet machine, a hollow drum or cylinder carrying plungers or formers, a frame in which the said drum or cylinder is mounted, adjustable bridges rigidly mounted on individual supports in the frame inside the drum, means for pressing
15 the plungers or formers successively against the said bridges, dies at the outer end of said plungers or formers, and a series of cylinders outside the said drum, the said
20 cylinders carrying corresponding formers and adapted to be rotated by gearing connected with the said drum, the bridges being successively farther and farther removed from the center of the drum.

2. In a rotary briquet machine, a hollow 25 drum or cylinder carrying plungers or formers, a frame in which the said drum or cylinder is mounted, adjustable bridges rigidly mounted on individual supports in the frame inside the drum, means for pressing 30 the plungers or formers successively against the said bridges, dies at the outer end of said plungers or formers, and a series of cylinders outside the said drum, the said cylinders carrying corresponding formers 35 and adapted to be rotated by gearing connected with the said drum, each bridge being provided with curved surfaces presented to the inner ends of the first named plungers. 40

Signed at New York, in the county of New York, and State of New York, this 1st day of December A. D. 1905.

CHARLES DE LUKACSEVICS.

Witnesses:

GEORGE H. STOCKBRIDGE,
THOS. H. BROWN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."