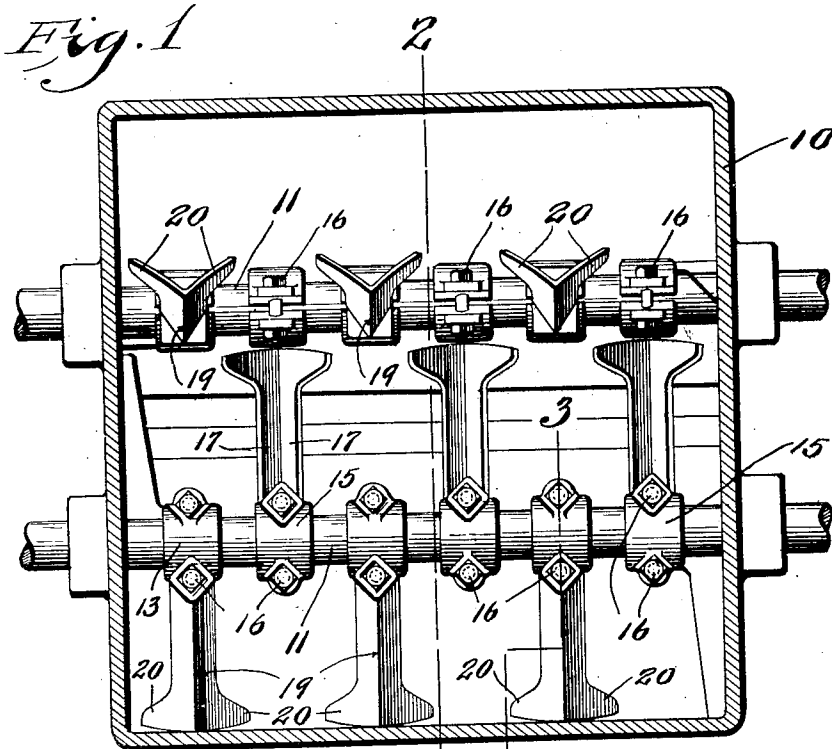
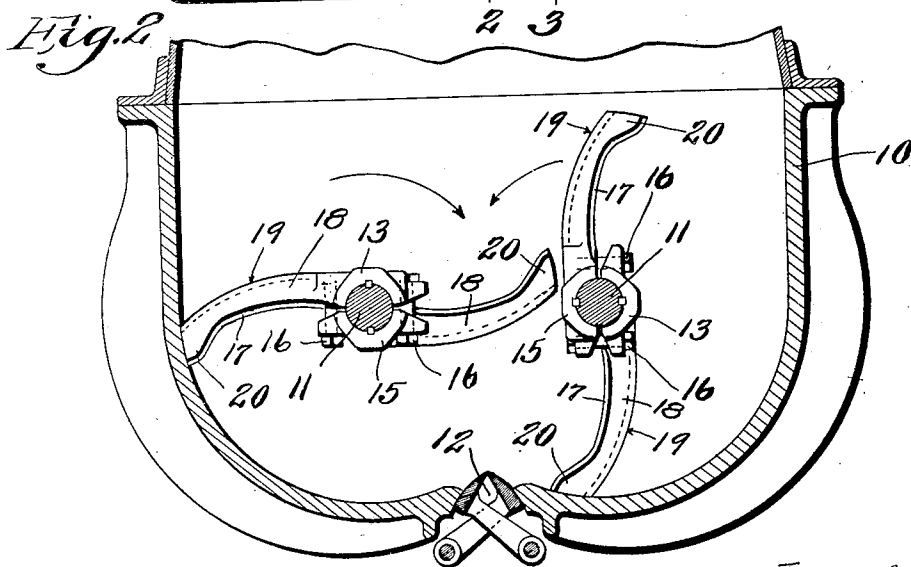


G. KOMAREK.
 FLUXER STIRRING ARM.
 APPLICATION FILED MAY 24, 1920.

1,370,893.

Patented Mar. 8, 1921.

2 SHEETS—SHEET 1.

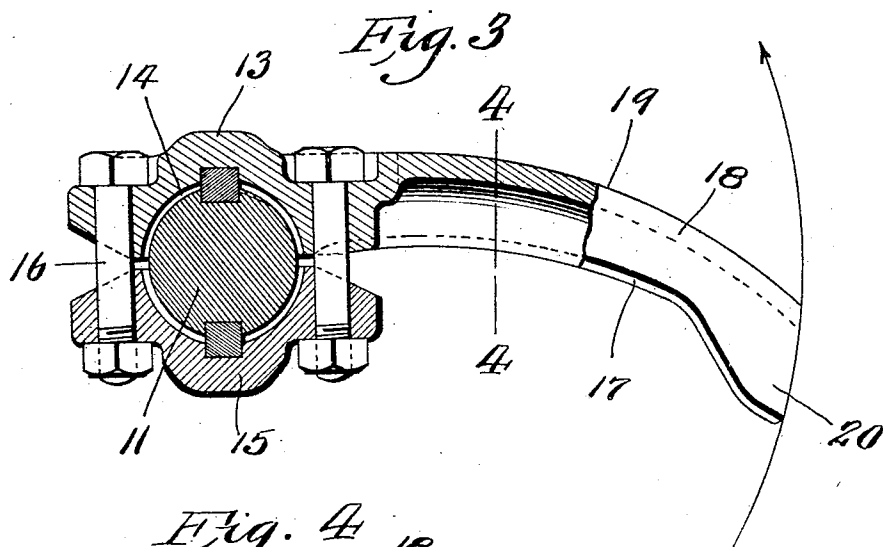
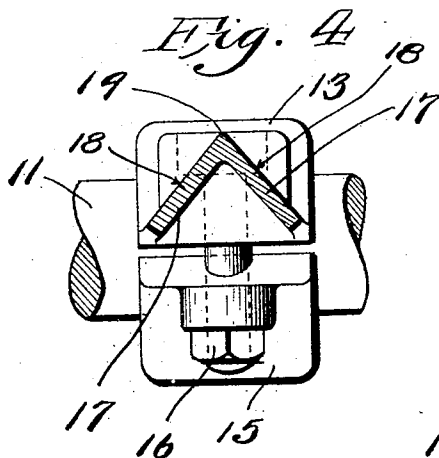
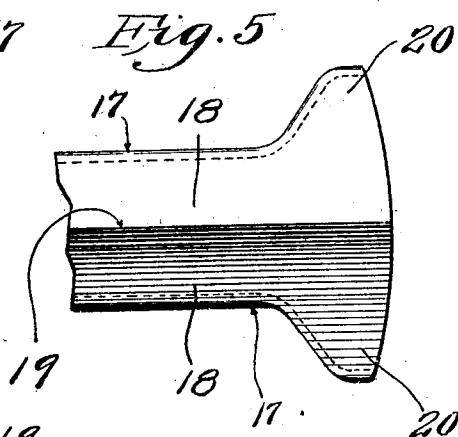
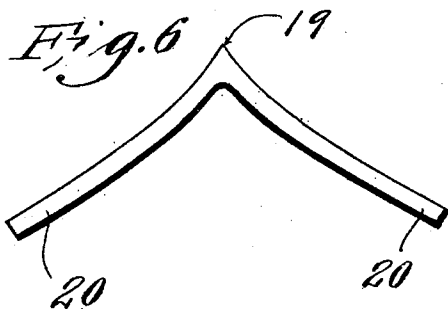


Inventor
 Gustav Komarek
 BY *J. M. Brinvaes*, Atty.

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By *E. M. [Signature]* Atty

UNITED STATES PATENT OFFICE.

GUSTAV KOMAREK, OF CHICAGO, ILLINOIS, ASSIGNOR TO ST. LOUIS BRIQUETTE MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

FLUXER STIRRING-ARM.

1,370,893.

Specification of Letters Patent.

Patented Mar. 8, 1921.

Application filed May 24, 1920. Serial No. 383,764.

To all whom it may concern:

Be it known that I, GUSTAV KOMAREK, a citizen of the United States, residing at Chicago, Illinois, have invented a certain new and useful Improvement in Fluxer Stirring-Arms, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates generally to fluxers or mechanical mixing apparatus, and more specifically to a stirring arm that is particularly designed for fluxers or mixing machines that are utilized for the treatment and mixing of plastic material which, after being properly prepared, is compressed into fuel briquets, such form of fluxer being disclosed in my copending application filed April 1, 1919, Serial Number 286,788.

The principal objects of my invention are, to generally improve upon and simplify the construction of the form of stirring arm disclosed in my application aforesaid, as well as other forms of stirring arms heretofore used in fluxers and mixing machines, and to provide a relatively simple and easily produced stirring arm which, in operation, will produce an intense kneading action upon the material under treatment.

It will be understood that the material used in the manufacture of fuel briquets generally includes a large percentage of pulverized carbonaceous material and a certain proportion of suitable binder which, before being mixed with the carbonaceous material, is in liquid or semi-liquid form. Fuel briquets to meet the requirements of users should be of homogeneous structure and of uniform density throughout their bodies and in order to produce briquets having these desirable qualities, I have demonstrated, by repeated experiments and tests, that the binder used in the briqueting material must be thoroughly spread or distributed over the surfaces of the particles of pulverized carbonaceous material. To achieve the results just noted, I have designed the particular form of stirring arm herein disclosed.

My improved stirring arm is constructed so that it passes through the plastic material with a plowing action so that the binder and particles of pulverized material are

brought into direct contact with each other many times due to their movements over the active surfaces of the stirring arms and the peculiar shape of the stirring arm permits it to pass through the material under treatment with the expenditure of minimum power.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a horizontal section of a fluxer or mixing machine and showing stirring arms of my improved construction carried by the shafts that extend through the fluxer.

Fig. 2 is a vertical section taken approximately on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail section taken approximately on the line 3—3 of Fig. 1.

Fig. 4 is a cross section taken approximately on the line 4—4 of Fig. 3.

Fig. 5 is a plan view of the outer end of one of the stirring arms.

Fig. 6 is an enlarged end elevational view of one of the stirring arms.

Referring by numerals to the accompanying drawings, 10 designates a suitable housing or receptacle, the space within which forms a fluxing chamber and journaled in suitable bearings in the end walls of this housing are shafts 11 which pass through the fluxing chamber and carry stirring arms of my improved construction.

Formed in the bottom of the housing is a discharge opening 12 that is controlled by a suitable valve or gate. Each stirring arm is formed from a single piece of metal, either cast or drop-forged, and its inner end takes the form of a block 13 that is substantially rectangular when viewed in plan and being provided in its underside with a transversely disposed notch or recess 14 for the accommodation of the shaft to which the arm is fixed.

In order to firmly secure the arm to the shaft, I prefer to combine with the block 13 a companion block 15 and to clamp the two blocks together upon the shaft 11 by bolts such as 16. If desired, suitable keys may be arranged between the shaft 11 and the blocks 13 and 15. The main body portion of the stirring arm and which is formed integral with the block 10 is substantially of

inverted V-shape in cross section, thereby forming a pair of connected webs or plates 17 that are disposed in planes approximately ninety (90) degrees apart and the inner edges of the outer faces 18 of said webs or plates uniting to form the apex or forward edge 19 of the arm.

The outer terminal portions of the webs 17 are extended laterally as designated by 20, thereby forming a widened end portion for each arm, and as a result of such construction, the outer portions of the extensions 20 of one arm overlap or extend beyond the paths of travel of the corresponding extensions on the adjacent arms when a series of the latter are properly positioned upon the fluxer shaft, thereby insuring the stirring of all of the material within the fluxing chamber and particularly the material that lies adjacent to the bottom wall of said fluxer.

The body of the stirring arm is constructed so that it curves gradually from the block 13 to the widened outer end portion, such curvature being in a rearward direction with respect to the plane occupied by said block and with respect to the direction of movement of the stirring arm.

The outer faces 18 of the main body portions of the stirring arm are made preferably flat, as illustrated in Fig. 4, but the outer faces of the widened ends of the webs are formed slightly concave as illustrated in Fig. 6, such formation being very effective in producing a thorough coating of the pulverized material with the binder while the briquetting material is under treatment.

In action my improved stirring arms which, as stated, are substantially V-shape in cross section, plow or cut through the material under treatment in such a manner as to divide the material, and that portion of the material which makes direct contact with the inclined outer faces of the arm passes outwardly in both directions over said inclined faces, the action being one of rubbing contact and as a result, the pulverized or finely divided particles of carbonaceous material will be very quickly and evenly coated with the liquid or semi-liquid binder.

It will be understood that a considerable number of the mixing arms are located on

each shaft within the mixing receptacle and as the arms carried by one shaft intersect the path of travel of the arms on the other shaft, the entire volume of material under treatment will be constantly agitated and mixed in such a manner as to insure the complete coating of the particles of carbonaceous material with the binder. As a result of this thorough mixing and coating of the separate particles of the carbonaceous material, the briquets that are formed from said material will be homogeneous and of uniform density throughout their bodies.

By operating the shafts 11 toward each other as indicated by the arrows in Fig. 2, the material under treatment is constantly forced outward away from the center of the mixing chamber, which action is due to the receding curvature of the arms. This action is particularly beneficial as the material under treatment receives a more intense kneading action on the outside of the arms and the mixing operation is materially enhanced by the widening of the ends of the arms, for by such arrangement, the extended end portions of each arm extend beyond the path of travel of the extended portions of the adjacent arms.

A stirring arm of my improved construction is comparatively simple, can be easily and cheaply produced, and is very effective in performing its intended functions.

It will be readily understood that minor changes in the size, form and construction of the various parts of my improved stirring arm can be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claim.

I claim as my invention:

A stirring arm for mixing machines having its main body portion curved rearwardly throughout its length, said body portion being substantially V-shaped in cross section, the apex of the V being forwardly presented and the outer end thereof having laterally extending wings or extensions whose outer faces are slightly concave.

In testimony whereof I hereunto affix my signature this 19th day of May, 1920.

GUSTAV KOMAREK.