Nov. 11, 1941.

J. KREEFT

DYE PADDER

Filed Nov. 26, 1940

2,262,009

2 Sheets-Sheet 1

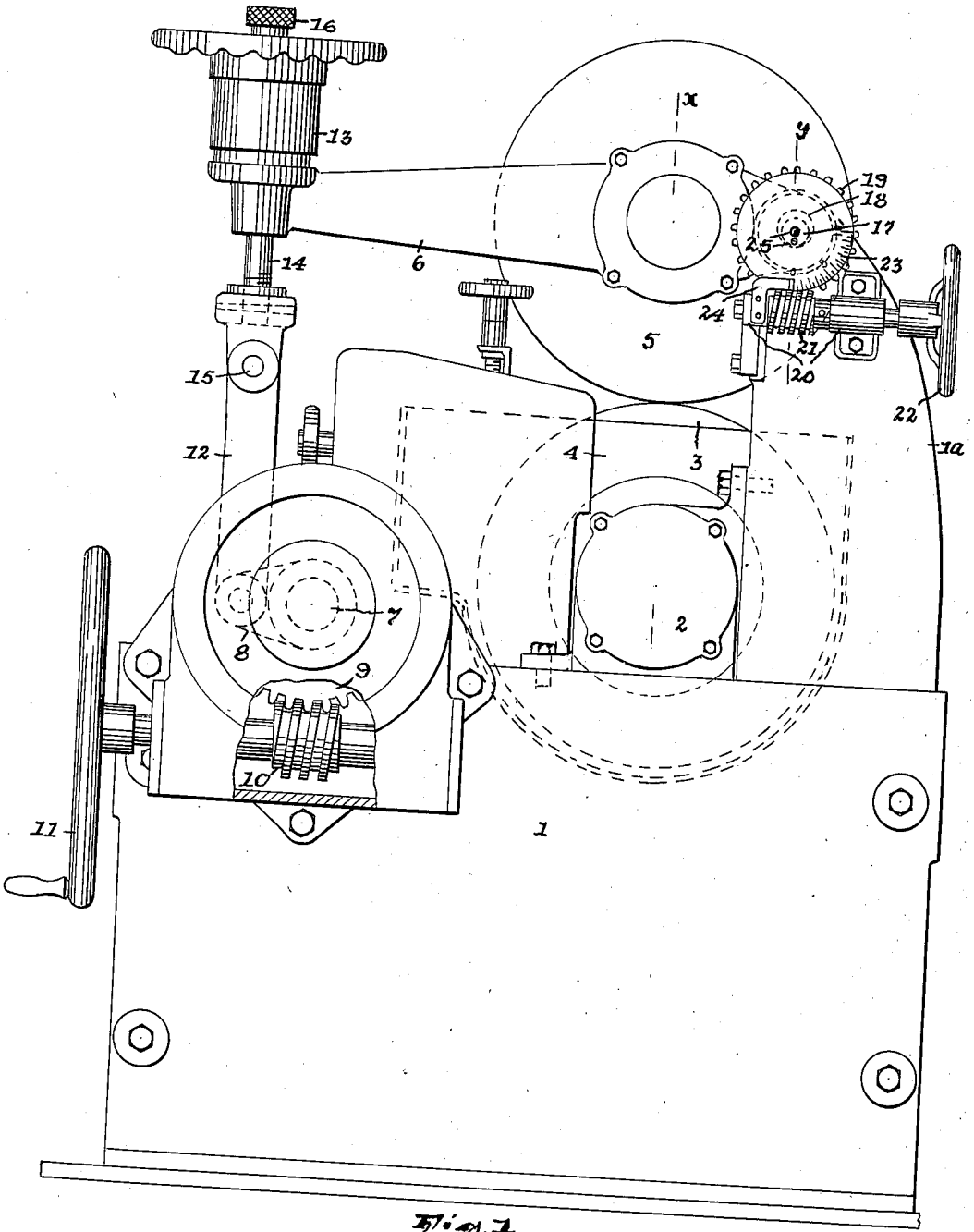


Fig. 1.

INVENTOR,
John Kreeft.

BY

John W. Ward

ATTORNEY.

Nov. 11, 1941.

J. KREEFT

2,262,009

DYE PADDER

Filed Nov. 26, 1940

2 Sheets-Sheet 2

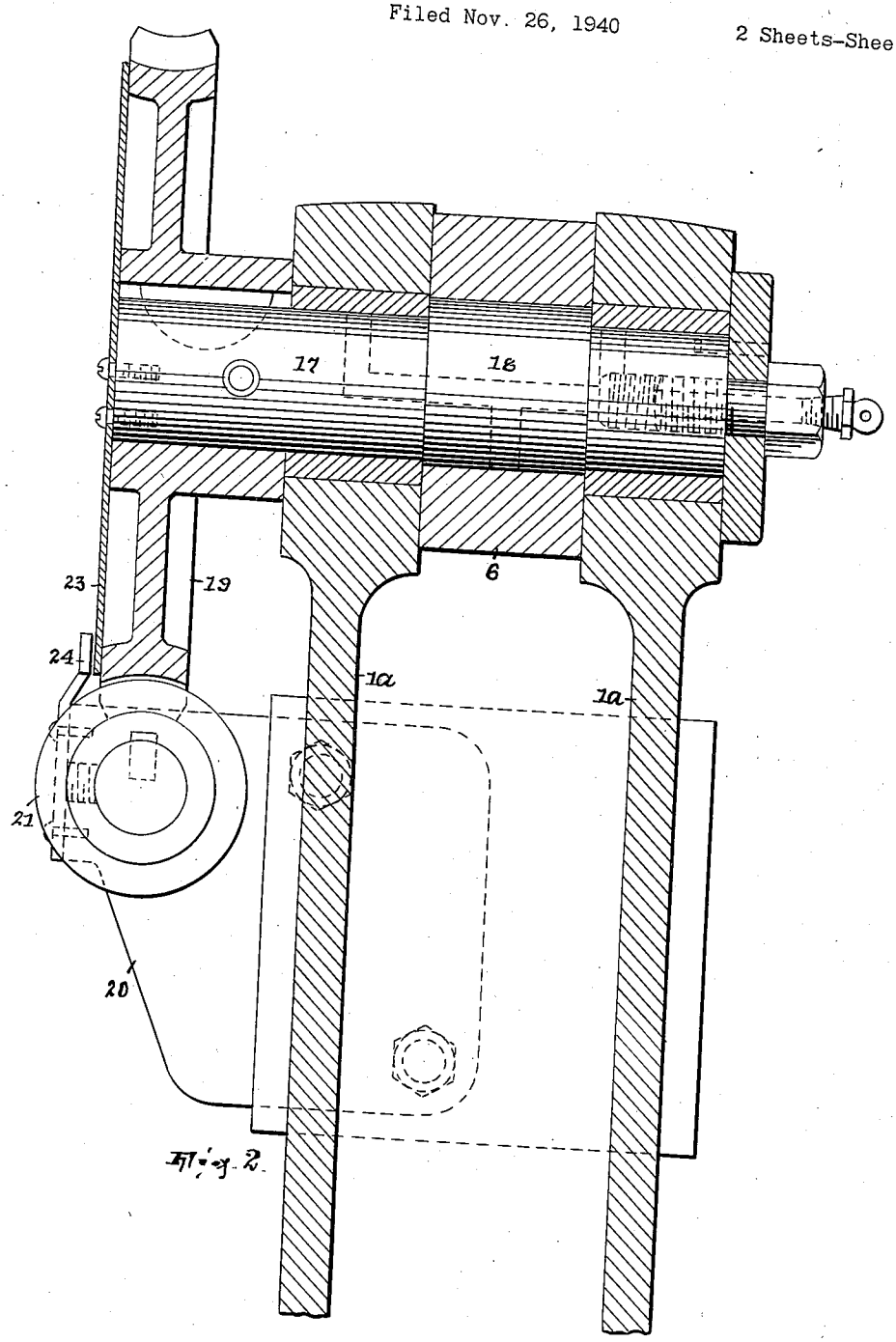


Fig. 2.

INVENTOR,
John Kreeft,
BY John A. Steward,
ATTORNEY.

Patented Nov. 11, 1941

2,262,009

UNITED STATES PATENT OFFICE

2,262,009

DYE PADDER

John Kreeft, Haledon, N. J., assignor to Morrison Machine Co., Paterson, N. J., a corporation of New Jersey

Application November 26, 1940, Serial No. 367,205

3 Claims. (Cl. 68—202)

The invention relates to that class of machines known as dye padders. In such machines there are two superposed rolls, the lower one of which dips into a dye bath and is positively driven and the upper one of which idles, being driven by the fabric, in turn driven by the lower roll and interposed between the two rolls, and there is means, usually including a pair of levers in which the upper roll is journaled, for causing the upper roll to exert pressure on the fabric which becomes dyed by the dye carried thereto by the periphery of the lower roll.

In these machines it has to be taken into account that, in view of the pressure which the upper roll exerts, the rolls are subjected to flexion or bowing by the interposed fabric which, unless compensated for in some way, results in the color not being uniformly applied to the fabric, being less pronounced adjacent its marginal portions, where the pressure is at the maximum, than it is between such margins. Hence, according to this invention I provide for adjusting the levers carrying the upper or idle roll in relatively opposite directions through a plane that cuts both rolls, whereby to position the upper roll in such skewed relation to the lower roll that with the fabric present between them the pressure thereon may be made substantially equal from margin to margin of the fabric as an incident of one or both rolls flexing under the pressure.

In the drawings,

Fig. 1 is a side elevation of so much of the improved dye padder as is pertinent to the invention; and

Fig. 2 is a fragmentary sectional view on line *y* of Fig. 1, with parts in elevation and others omitted.

In the fixed structure 1 are journaled in fixed bearings 2 the trunnions of the roll 3, which is to be understood to be positively driven, as by gearing (not shown). This roll depends into dye liquor in the trough 4 which the trunnions of said roll penetrate.

The upper roll is at 5 and has its trunnions journaled in a pair of levers, as 6. How each lever is fulcrumed will appear hereinafter. The two levers are to be simultaneously depressed so as to cause roll 5 to exert the required pressure on the fabric passing between the rolls. For this purpose there is journaled in a fixed structure a horizontal shaft 7 at right angles to the levers and having cranks 8 and also a worm-wheel 9 in mesh with a worm 10 journaled in the fixed structure and having a hand-wheel 11 and there is the following coupling means between each of the two cranks and the corresponding lever, to wit: a link 12 is pivoted to the crank, a nut 13 supported by the lever, and a stem 14 penetrating the lever and in threaded engagement with the nut and having the link pivoted thereto at 15 and being equipped with a lock-nut 16 to bind against nut 13.

The fixed structure includes two pairs of standards 1*a*. In each pair is revoluble a shaft 17 having an eccentric 18 between the two standards of such pair and which affords the fulcrum for the corresponding lever. On one end of this shaft (preferably the outer one relatively to the other such shaft) is keyed a worm-wheel 19 concentric therewith. Journaled in bearings 20 on the adjoining one of the pair of standards is a worm 21 meshing with said worm-wheel and having a hand-wheel 22. On the worm-wheel is a dial 23 and fast to one of the bearings is a pointer 24 coactive with such dial. The members, each formed by shaft 17 and associated parts, have a common axis parallel with the axis of roll 3.

With the axis of roll 5 coincident with some plane, as *x*, radial to the axis of roll 3, the radii of maximum eccentricity of the two fulcra (eccentrics 18) of the levers should be in a plane, as *y*, parallel with the first-named plane, or in a vertical plane if, as usual, the former plane is vertical, and the free ends of the pointers should coincide with the second-named plane. For determining the position of each dial on the corresponding worm-wheel 19 two indices (as screws) 25 are provided on the worm-wheel, one at the center and the other in the diameter coincident with such radius. Each dial is then so positioned that its zero mark will coincide with a radius itself coinciding with these indices.

Of course, when the rotary members, each consisting of a shaft 17 and associated parts, are adjusted they are adjusted in relatively opposite rotative directions, viewing them both from the same side of the machine, usually both to the same degree. This is done after first having so adjusted the levers by means of the crank-shaft 7 as to cause the idle roll just to contact the driven roll throughout their lengths, i. e., with the fulcra or eccentrics 18 in neutral positions or their radii of maximum eccentricity in plane *y*. Of course, different thicknesses and textures of different fabrics and other conditions require different extents of adjustment of said members. The dials and pointers are therefore useful not only in attaining equal adjustments of said

members but in determining the degree of skew of the idle roll relatively to the driven roll which should be effected in order to attain uniform treatment of the particular piece of fabric to be dyed.

Having thus fully described my invention, what I claim is:

1. In a dye padder, the combination of supporting structure, a driven dye-carrying roll journaled therein, an idle roll having its axis extending generally lengthwise of the axis of the driven roll, a pair of levers in which, between them, the idle roll is journaled, means to move the levers around their fulcruming axes in the direction to urge the idle roll toward the driven roll, separate means, providing fulcra for the respective levers, adjustable in said structure in relatively opposite directions through a plane cutting both rolls, and means to secure said second-named means, when adjusted, in substantially fixed relation to said structure.

2. In a dye padder, the combination of supporting structure, a driven dye-carrying roll journaled therein, an idle roll having its axis extending generally lengthwise of the axis of the driven roll, a pair of levers in which, between them, the idle roll is journaled, means to move the levers around their fulcruming axes in the direction to urge the idle roll toward the driven roll, separate members, providing fulcra for the respective levers, rotatively adjustable in said structure in relatively opposite directions and having their axes extending generally lengthwise of the axis of the driven roll, the fulcrum portion of each member being eccentric thereof, and means to secure said members, when adjusted, in substantially fixed relation to said structure.

3. In a dye padder, the combination of supporting structure, a driven dye-carrying roll journaled therein, an idle roll having its axis extending generally lengthwise of the axis of the driven roll, a pair of levers in which, between them, the idle roll is journaled, means to move the levers around their fulcruming axes in the direction to urge the idle roll toward the driven roll, separate members, providing fulcra for the respective levers, rotative in said structure in relatively opposite directions and having their axes extending generally lengthwise of the axis of the driven roll anl their fulcra eccentric of their axes, and rotary means, geared to said members, to secure them, when adjusted, in substantially fixed relation to said structure.

JOHN KREEFT.