July 14, 1925. 1,545,642

J. S. EASON

WRINGER

Filed May 17, 1921. 2 Sheets-Sheet 1

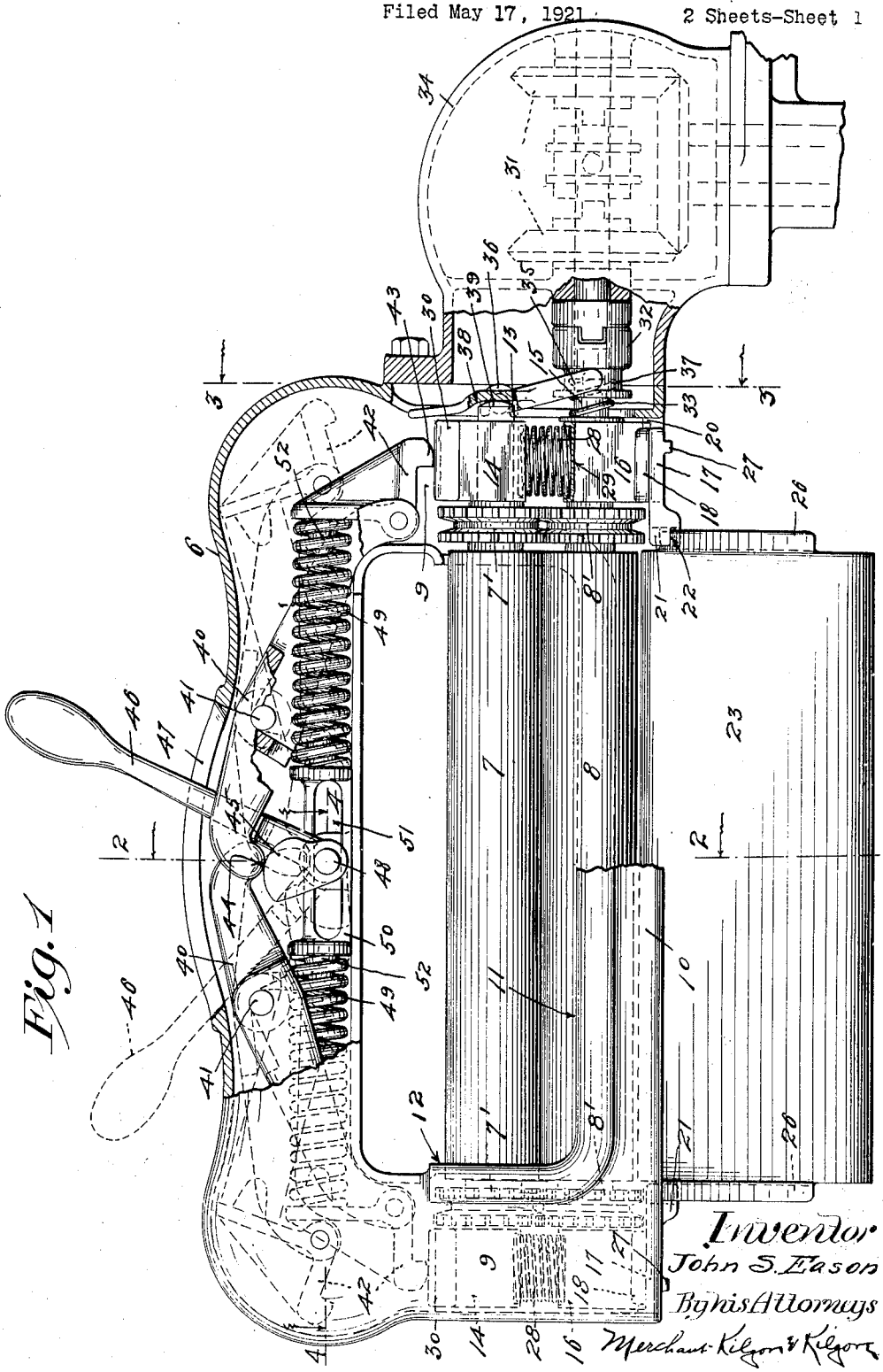


Fig. 1

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2 Sheets-Sheet 2

Fig. 2

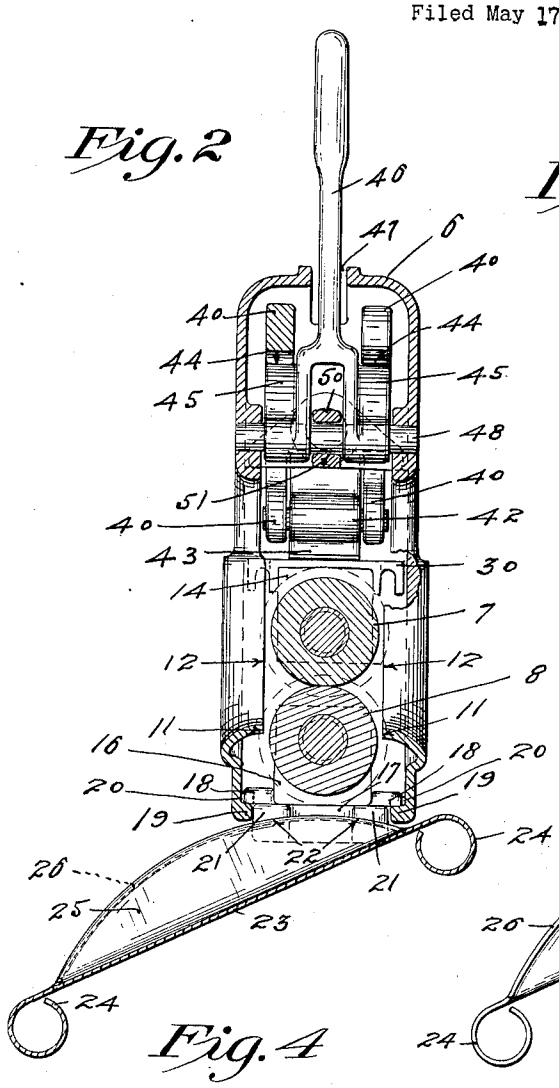


Fig. 3

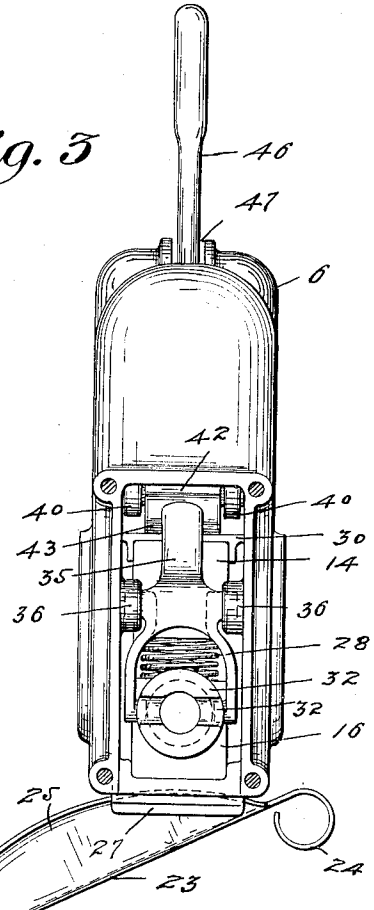


Fig. 4

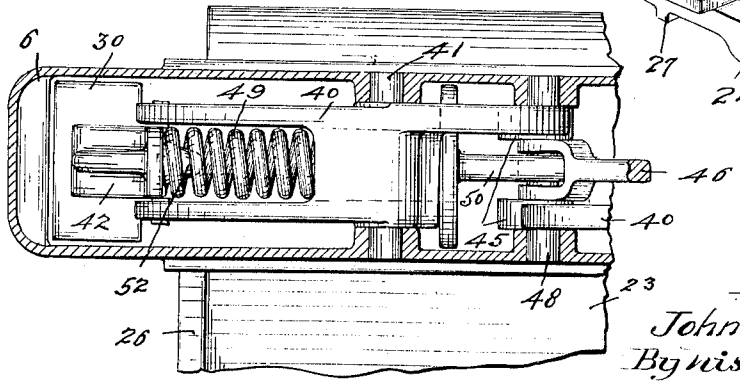
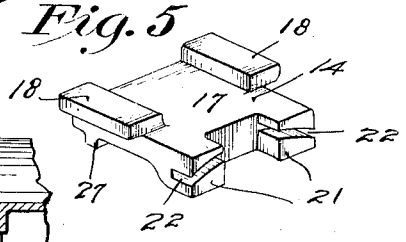


Fig. 5



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Patented July 14, 1925. 1,545,642

UNITED STATES PATENT OFFICE.

JOHN S. EASON, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO TWIN CITY WRINGER COMPANY, OF ST. PAUL, MINNESOTA, A CORPORATION OF DELAWARE.

WRINGER.

Application filed May 17, 1921. Serial No. 470,242.

To all whom it may concern:

Be it known that I, JOHN S. EASON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Wringers: and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to wringers for clothes or similar articles, and, more particularly, to such wringers that are power-operated and have a safety device whereby the pressure on the co-operating rolls may be instantly released to permit the rolls to separate and, at the same time, stop the driving connection to the rolls, and has for its object to improve the same in the several particulars hereinafter noted.

To the above ends, generally stated, the invention consists of the novel devices and combination of devices, hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views:

Referring to the drawings:

Fig. 1 is an elevation of the improved wringer, with some parts broken away and sectioned;

Fig. 2 is a view principally in transverse vertical section taken on the line 2—2 of Fig. 1;

Fig. 3 is a view principally in end elevation with some parts sectioned on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary view partly in plan and partly in horizontal section taken on the line 4—4 of Fig. 1; and

Fig. 5 is a perspective view of one of the removable bearing plates.

The frame 6 of the improved wringer is cast as an entirety and is of substantially rectangular formation with a correspondingly formed opening in which the contacting surfaces of co-operating upper and lower rolls 7 and 8 are exposed and, to which rolls, clothes may be fed through said opening from either side of the frame. The top member and side members of the frame 6 are made hollow to afford a housing in which all of the parts of the wringer are mounted, with the exception of the rolls 7 and 8.

Laterally spaced guide columns 9, between which the ends of the rolls 7 and 8 project, are afforded by the sides of the end members of the frame 6. The lower member of the frame 6 affords two laterally spaced tie-bars 10 which connect the guide columns 9 at their lower ends and between which, the lower roll 8 works. The inner longitudinal edges of the tie-bars 10 and the inner edges of the guide columns 9 are turned inward to afford flanges 11 and 12, respectively, the former of which flanges are above the horizontal center of the lower roll 8 and terminate close to the periphery thereof and assist in directing clothes to the rolls 7 and 8, and the latter of which flanges terminate close to both rolls 7 and 8 and overlap the ends thereof to prevent clothes from getting beyond said ends.

Trunnions 13, for the upper roll 7, are journaled in movable bearings 14 and trunnions 15, for the lower roll 8, are journaled in stationary bearings 16. These bearings 14 and 16 are preferably made from hard wood and are bored to afford seats for the respective trunnions 13 and 15. The stationary bearings 16 are removably seated on bearing plates 17 having on their upper faces, pairs of supporting ears 18, which extend outward of the sides of said plates and slidably rest on internal flanges 19 on the lower ends of the guide columns 9. These supporting ears 18 also hold the stationary bearings 16 in position. The sliding movement of the bearing plates 17 on the flanges 19, under the stationary bearing 16, is limited by the engagement of the ears 18 with stops 20 on the transverse portions of the frame 6.

Laterally spaced pairs of lugs 21, on the opposing ends of the bearing plates 17, are provided with segmental slots or channels 22 from which is supported a drain board 23, of novel construction. This drain board 23 is formed from a single sheet of metal having rolled longitudinal edges 24 and upturned ends 25 with segmental upper edges, which have correspondingly formed outstanding flanges 26 slidably mounted in the channel 22 and support the drain board 23 from the bearing plates 17 with freedom for adjustment so as to drain water, wrung from clothes passing between the rolls 7 and 8, on either side of the frame 6. On the bottoms of the bearing plates 17 are transverse lugs

27, by which said bearing plates may be slid on the flanges 19 to and from positions under the stationary bearings 16 and carry the channel-equipped lugs 21 into and out of interlocking engagement with the segmental flanges 26.

Interposed between the bearings 14 and 16 are coiled springs 28 mounted in recessed seats 29 bored in the opposing faces of said bearings and under strain to lift the movable bearings 14 and separate the rolls 7 and 8. These seats 29 not only hold the springs 28 in position but permit said springs to be of sufficient length to lift the movable roll 7 the desired distance above the roll 8. On top of the movable bearings 14 are combined wearing plates and guides 30, the latter of which co-operate with the guide columns 9 to guide the movable bearings 14.

The lower roll 8 is driven from a motor or otherwise by two-speed mechanism, one speed forward and one speed backward, indicated as an entirety by the numeral 31 with the exception of a clutch 32 yieldingly held set by a coiled spring 33 and separably connecting the driving mechanism to the respective trunnion 15 of the lower roll 8. This driving mechanism 31 and clutch 32 are mounted in a housing 34 bolted to the frame 6.

To release the clutch 32 and stop the driving power to the lower roll 8, there is provided a clutch-releasing lever 35 intermediately fulcrumed in bearings 36 on the frame 6 and having a forked lower end connected to a shipper collar 37 on said clutch. The upper end of the clutch-releasing lever 35 is provided with a cam surface 38 arranged to be engaged by a cam surface 39 on the end of the adjacent trunnion 13 of the upper roll 7, when said upper roll has been separated from the lower roll 8 a predetermined distance, to release said clutch against the tension of its spring 33. The upper roll 7 is driven at both ends from the roll 8 by intermeshing gears 7′ and 8′ on the respective trunnions 13 and 15.

For holding the upper roll 7 in contact with the lower roll 8 under a variable pressure and for releasing the pressure thereon to permit the rolls to separate under the action of the springs 28, the following mechanism is provided, to wit; a pair of oppositely extended horizontally disposed pressure levers 40 are intermediately fulcrumed on a pin 41 mounted in the walls of the top member of the frame 6. The outer ends of the levers 40 are forked, and fulcrumed to the prongs thereof, are pressure devices in the form of bell-cranks 42, the horizontal outturned arms of which are provided on their lower faces with segmental bearing surfaces 43, which normally rest on the combined wearing and guide plates 30. The inner or short ends of the levers 40 overlap and are provided with cam surfaces 44, which rest on a two-part head 45. The members of the cam head 45 are laterally spaced and integrally formed with the outer faces of the prongs of a bifurcated lever 46, which works through a slot 47 in the top member of the frame 6 and projects thereabove where the same may be easily operated. This lever 46 and cam head 45 are fulcrumed on a pin 48 mounted in seats on the side walls of the top member of the frame 6.

A two-part combined pressure and equalizer coiled spring 49 is provided for holding the bell-cranks 42 on the movable bearings 14 and the sections thereof are mounted between the vertical arms of said bell-cranks and a floating abutment 50. This floating abutment 50 works between the prongs of the lever 46 and is provided with a longitudinal slot 51, through which the pin 48 projects and supports the abutment. By reference to Fig. 4, it will be noted that the ends or heads of the abutment 50 are extended for engagement with the sides of the frame 6 to laterally guide said abutment. Pilots 52, on the bell-cranks 42 and floating abutment 50, hold the sections of the spring 49 positioned.

When the lever 46 is in its extreme right-hand position, the cam surfaces 44, on the inner ends of the levers 40, are at the highest points on the cam head 45 and, hence, exert their greatest pressure on the upper roll 7 through the bell-cranks 42 and movable bearings 14. In this position of the lever 46, the spring 49 is under its greatest tension for the reason that the pressure applied to the bell-cranks 42 causes the same to move on their pivots in a direction to shorten the distance between their vertical arms and thereby compressing said springs. By adjusting the lever 46 to the left, the pressure on the upper roll 7 and the tension on the spring 49 are progressively decreased. When the lever 46 is moved to its extreme left-hand position, as indicated by broken lines in Fig. 1, the cam head 45 is in a position to entirely release the levers 40, which, in turn, release the pressure on the upper roll 7 and the tension on the combined pressure and equalizing spring 49.

From the above description, it is evident that when wringing silk or other thin goods, the lever 46 may be adjusted to its extreme right-hand position, so that the greatest pressure will be applied to the rolls 7 and 8. In wringing coarser or thicker goods, the lever 46 may be adjusted to the left so that the desired pressure may be applied to the rolls.

In case the operator's hand is caught between the rolls or in the clothes and is being drawn to the rolls, the operator, by moving the lever 46 to its extreme left-hand posi-

tion, may instantly release the pressure on the rolls and allow the same to separate, and the releasing action of the rolls will automatically release the clutch 32 and stop the driving action to the rolls.

Should the clothes, in passing between the rolls, be of uneven thickness and thereby lift one end of the roll 7 higher than the other end, the resulting unequal pressure on the two ends of the upper roll 7 will be automatically equalized by the spring 49. This equalization of the pressure on both ends of the upper roll 7 is highly important as it causes the clothes, passing between the rolls, to be wrung with equal pressure throughout the full lengths of the rolls.

In assembling the improved wringer, all of the parts above the rolls are first put in position. The upper roll, with its bearing 14, is then inserted in position through the open bottom of the frame 6, and, thereafter, the springs 28, together with the lower roll 8 and its bearings 16, are placed in position, in the same manner. Next, the movable bearing plates 17 are inserted under the fixed bearings 16 by sliding the same on the flanges 19, and, at the same time, with their outer ends lifted so as to pass above the stops 20. During the positioning of the sliding bearing plates 17, the lever 46 must be in its extreme left-hand position, as indicated by broken lines in Fig. 1, so that there will be no pressure on the upper bearings 14 or tension on the spring 49. The drain board 23 is then held so that its flanges 26 will enter the channels 22 in the sliding bearing plates 17 and said bearing plates move, by means of their lugs 27, to which may be applied a screw driver or other tool, toward each other so as to slide off the stops 20 and onto the flanges 19.

Obviously, the drain board 23 and stops 20 hold the movable bearing plates 17 in position.

What I claim is:

1. In a wringer, the combination with cooperating rolls, one of which is journaled in movable bearings, of independently movable pressure devices, levers for applying the pressure devices to the movable bearings, means for positively holding the levers in fixed positions, and a combined pressure and equalizing spring means operative on the pressure devices independently of the levers.

2. In a wringer, the combination with cooperating rolls, one of which is journaled in movable bearings, of independently movable pressure devices, levers for applying the pressure devices to the movable bearings, a lever-actuated cam for positively holding the levers in fixed adjusted positions, and a combined pressure and equalizing spring means operative on the pressure devices independently of the levers.

3. In a wringer, the combination with cooperating rolls, one of which is journaled in movable bearings, of a pair of levers, a pair of bell cranks set under tension and carried by said levers and engageable with said movable bearings, yielding means operating on said bell cranks, and adjustable means operative to apply variable pressure to said levers and to release the same.

4. In a wringer, the combination with cooperating rolls, one of which is journaled in movable bearings, of a pair of levers, a pair of bell cranks pivoted one to each of said levers and operating on the movable bearings, yielding means operative on said bell cranks, and means for applying pressure to said levers and for releasing the same.

5. In a wringer, the combination with cooperating rolls, one of which is journaled in movable bearings, of a pair of reversely extended intermediately fulcrumed levers, bell cranks pivoted on the outer ends of the levers, one of the arms of said bell cranks being arranged to engage the movable bearings, a combined pressure and equalizing spring means, means interposed between the other arms of the bell cranks, and a lever-equipped cam operative on the inner ends of the levers for holding the same with the bell cranks in engagement with the movable bearings under a variable pressure and for releasing the same.

6. In a wringer, the combination with cooperating rolls, one of which is journaled in movable bearings, a pair of levers, a pair of bell cranks set under tension and cooperating with said levers to press said movable bearings downward, means for applying a variable pressure to said levers and for releasing the same, and springs under strain to separate the rolls and move the bell cranks and levers into inoperative positions.

7. In a wringer, the combination with cooperating upper and lower rolls having trunnions journaled in movable and fixed bearings respectively, of means for driving the lower roll including a yieldingly set clutch, a clutch-actuating lever mounted on an axis perpendicular to the trunnions of the rolls directly operative on the clutch and having a cam surface arranged to be engaged by one of the trunnions of the upper roll upon a predetermined separation of the rolls to release said clutch, and pressure devices operative on the movable bearings.

8. In a wringer, the combination with a frame having guide columns, of upper and lower cooperating rolls having trunnions extending between the guide columns, movable and fixed bearings mounted between the guide columns in which the trunnions of upper and lower rolls are journaled respectively, removable bearing plates carried by the columns and on which the fixed bearings are supported, pressure devices opera-

tive on the movable bearings, and a drain board carried by said removable bearing plates.

9. In a wringer, the combination with a frame having guide columns, of cooperating rolls having bearings mounted in the guide columns, removable supporting plates for the bearings for one of the rolls and held in position thereby, and a drain board carried by the supporting plates and shiftable therein from one side of the frame to the other.

10. In a wringer, the combination with wringing rolls and means for rotating the same, one of said rolls being movable toward and from the other, a pair of pressure levers, rockers pivoted to and carried by said levers and operative on the corresponding ends of the movable roll, spring means operative on said rockers, and means for adjusting said levers to vary the tension of said spring means.

11. In a wringer, the combination with wringing rolls and power-driving mechanism therefor, independently pivoted pressure levers, rockers pivoted to the free outer ends of said levers, spring means operative on said rockers to cause the latter to press the one roll toward the other, a movable abutment operative on the inner ends of said levers, and means for operating the abutment to set the pressure levers and thereby throw said spring means into action and to release said levers and thereby throw said spring means out of action.

12. In a wringer, the combination with co-operating wringer rolls and a power-driving mechanism therefor, of intermediately pivoted pressure levers provided at their free outer ends with bell cranks operative to press the movable wringer roll toward the cooperating wringer roll, a spring tension device independent of said levers and compressed between the upper arms of said bell cranks, an abutment movable to and from an operative position under the inner ends of said pressure levers, and means for operating the abutment.

13. In a wringer, the combination with co-operating wringing rolls and a power-driving mechanism therefor, of intermediately pivoted pressure levers provided at their free outer ends with bell cranks operative to press the movable wringer roll toward the co-operating wringer roll, a spring tension device compressed between the upper arms of said bell cranks, said spring tension device including two coiled springs and an interposed sliding bracket guided for horizontal movements.

In testimony whereof I affix my signature.

JOHN S. EASON.