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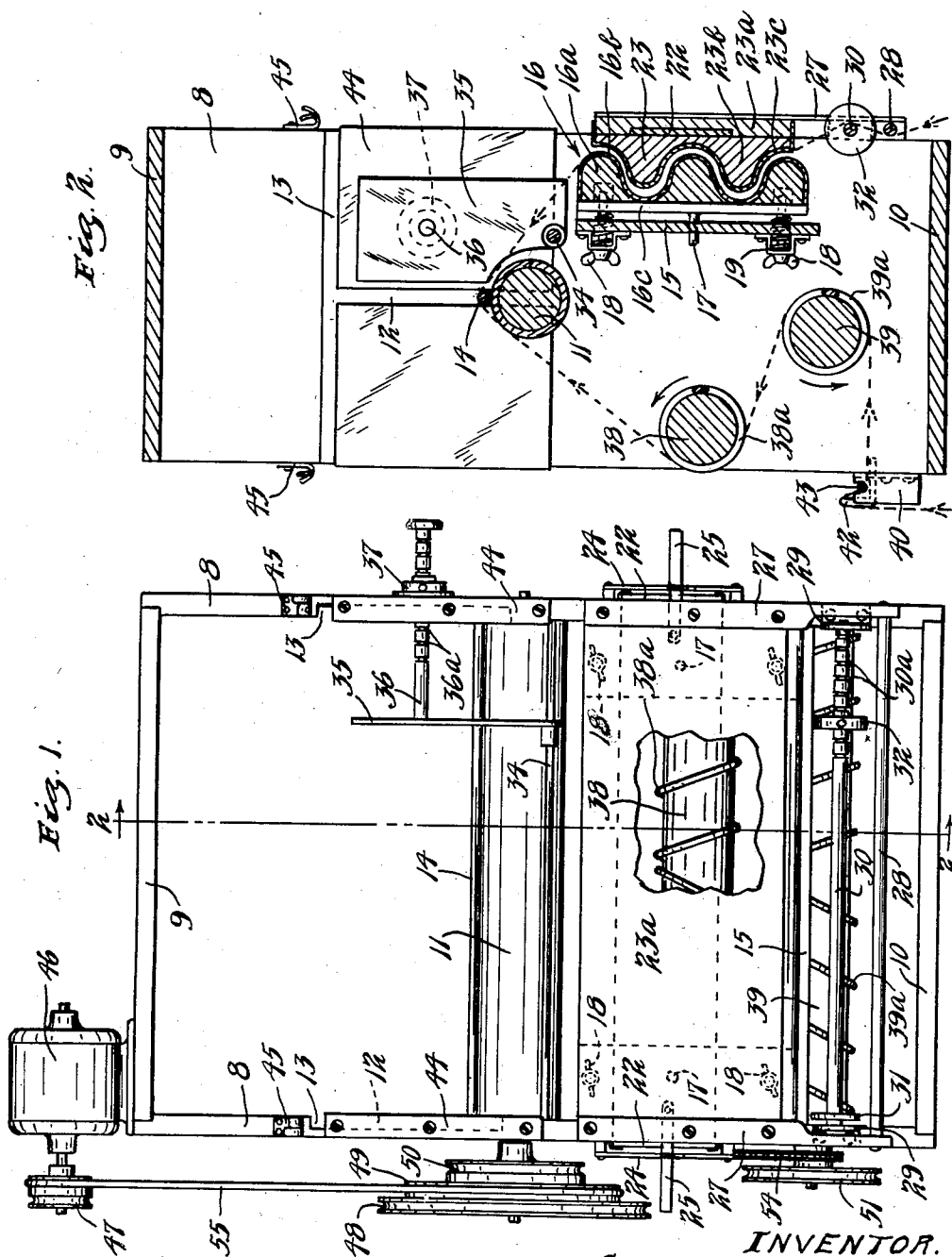
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TOWEL WINDING DEVICE

Filed June 4, 1932

2 Sheets-Sheet 1



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 SAMUEL A. SCHWARTZ
 BY HIS ATTORNEYS.
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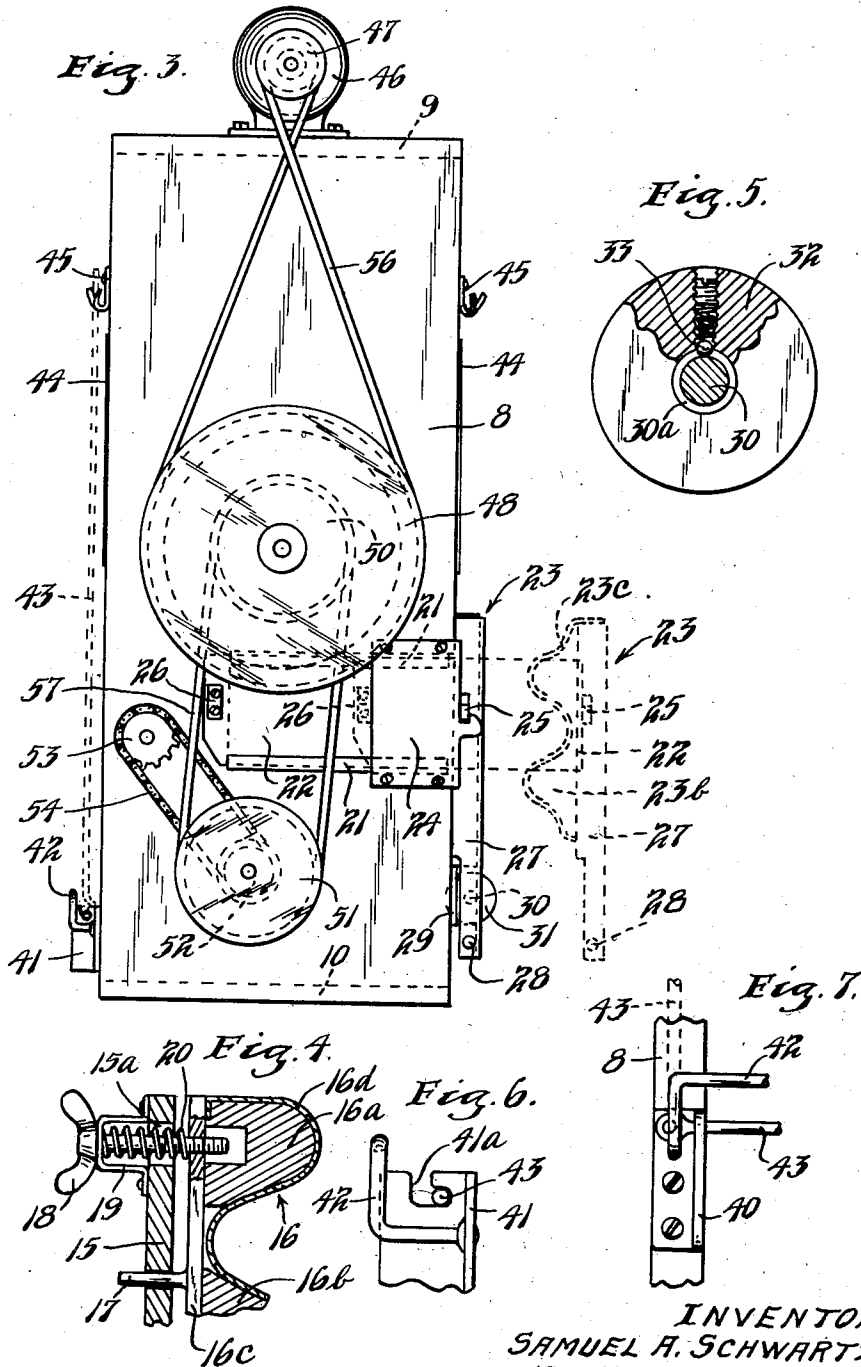
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UNITED STATES PATENT OFFICE

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TOWEL WINDING DEVICE

Samuel A. Schwartz, St. Paul, Minn.

Application June 4, 1932, Serial No. 615,418

3 Claims. (Cl. 26—63)

This invention relates to towel winding devices. Many towel cabinets are now used in lavatories and similar places, for dispensing cloth toweling. This cloth toweling is very often wound in rolls as delivered from the laundry and in many types of cabinets that are used, it is quite essential to the proper operation of the cabinets that the toweling wound in these rolls be wound under even tension. In many cabinets such, for example, as those disclosed in my Patents 1,860,207 and 1,860,208 issued to me on May 24, 1932, and entitled respectively "Towel cabinet" and "Cabinet for towels", the toweling, as it is dispensed, hangs in a service loop below the cabinet and at the same time that clean portions of toweling are dispensed for use, soiled portions of toweling are wound up. In order that the same amount of toweling be wound up as is dispensed, to maintain uniform length of the service loops of the toweling in such cabinets, it is highly important that the clean rolls of toweling as received from the laundry be wound under approximately the same tension as the soiled toweling is wound in the cabinets.

It is accordingly an object of the present invention to provide a novel and improved towel winding device particularly adapted for use in laundries and incorporating therein means for adjustably tensioning the toweling as it is wound up.

Another object is to provide a towel winding device including means for winding both wet toweling and means for winding dry toweling so that the same winding machine may be used for both purposes.

Another object is to provide in such a winding device novel means for properly guiding toweling of different widths for proper winding thereof.

These and other objects and advantages of the present invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like reference characters refer to the same or similar parts throughout the various views and, in which,

Fig. 1 is a view in elevation looking toward the face of the machine to which dry toweling is led, certain of the parts being broken away to more clearly show the construction of other parts and the machine being set up for use in winding dry toweling;

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1, as indicated by the arrows;

Fig. 3 is a view in side elevation of the device showing the left side thereof as viewed in Fig. 1, the driving mechanism being set up for use in

winding wet toweling and the sliding tensioning block being shown in one position in full lines and in another position in dotted lines;

Fig. 4 is a detailed view of certain of the parts shown in Fig. 2;

Fig. 5 is a detailed view showing one of the guide members, certain of the parts being shown in section;

Fig. 6 is a view in side elevation illustrating the manner of attachment of the swingable rod for the wet toweling; and

Fig. 7 is a view illustrating the manner of attachment of the opposite ends of the rods shown in Fig. 6, two positions of the swingable rod being shown in full and dotted lines respectively.

In accordance with the invention there is provided an open rectangular frame formed by two spaced side uprights 8, a top slat 9 and a bottom slat 10. Spaced downwardly from the top slat 9 some little distance, there is a feed roller 11 having trunnions journaled in the central portions of the uprights 8. Vertical grooves 12 are formed in the uprights 8 above the feed roller 11 and these grooves lead to horizontal grooves 13 extending from one edge of each upright 8 to the other edge thereof. A rod 14 forming a winding core is provided and this rod may be moved through the horizontal grooves 13 into the vertical grooves 12 to rest with whatever toweling that may be wound thereon on the feed roller 11 by gravity.

Below the feed roller 11 and disposed outwardly toward one face of the frame from the feed roller, a vertical cross plate 15 is secured to the uprights 8 to extend between the same. A fluted block 16 which may be conveniently formed by bars 16a, an alternately ribbed and channeled smooth faced plate 16b and a pair of vertical end plates 16c carries a pair of pins 17 which are slidably mounted within openings adjacent the ends of the plate 15. Screwed into the vertical plates 16c adjacent the ends thereof and received within recesses 16d within the upper and lower bars 16a are thumb screws 18 which project through large openings 15a in the plate 15 and have heads which bear against brackets 19 secured to the inner side of plate 15. Coiled springs 20 surround the thumb screws 18 and react between the vertical plates 16c and the brackets 19. The springs 20 accordingly urge the fluted block 16 outwardly from the plate 15.

A pair of channel-shaped guides 21 are mounted on the outer sides of the uprights 8 and a U-shaped bar 22 has ends slidably mounted within these guides 21 for extension of the medial por-

tion of the bar to and from the fluted block 16. A second fluted block 23 which mates with the fluted block 16 is secured to the medial portion of the bar 22 and this mating fluted block 23 may be conveniently formed by a cross slat 23a, an alternately ridged and channeled member 23b and a metal plate 23c which is alternately grooved and channeled and has a smooth face. Latch plates 24 are secured to the uprights 8 over the channels 21 and these latch plates have outwardly projecting latch teeth for co-operative engagement with short pivoted latch bars 25 mounted at the ends of the mating fluted block 23. Stops 26 are secured to the inner portions of the ends of the U-shaped bar 22 for cooperation with the latch plates 24 to limit outward sliding movement of the bar 22 and fluted block 23 carried thereby. Vertical bars 27, through slots in which the latch bars 25 extend, are secured to the outer side of the block 23 adjacent the ends thereof and project downwardly therefrom and a cross rod 28 extends between and is secured to the depending end portions of these bars 27.

Somewhat above the position of the rod 28 but below the two blocks 16 and 23, angular brackets 29 are mounted on the adjacent edges of the uprights 8 and a rod 30 extends between and is mounted between these brackets. This rod adjacent its left end as viewed in Fig. 1, carries a collar 31 and is provided with spaced circumferential grooves 30a adjacent its right end. An apertured gauging guide disk 32 is mounted on the rod 30 adjacent its right end, as viewed in Fig. 1, and this disk, as best shown in Fig. 5, carries a spring pressed ball 33 adapted to be engaged in any one of the grooves 30a to retain the disk in any adjusted spaced relation from the collar 31.

A rod 34 extends between the uprights 8 immediately above the plate 15 and slidably mounted on this rod is a gauging guide plate 35 to which a rod 36 is secured which runs through an opening in the right upright, as viewed in Fig. 1, and also through a collar 37 secured to the outer side of this upright. Rod 36 has spaced circumferential grooves 36a formed therein for cooperation with a spring pressed ball (not illustrated) mounted within the collar 37. Rod 36 is equipped with a knob at its outer end and it will be apparent that the gauging plate 35 can be slid either to the right or to the left on the rod 34 and retained by cooperative engagement between the spring pressed ball within the collar 37 and the grooves 36a on rod 36 in any desired adjusted position from the left upright 8, as viewed in Fig. 1.

The face of the frame formed by the uprights 8 and top and bottom slats 9 and 10, adjacent which the fluted blocks 16 and 23 are disposed, may be called the dry towel face as distinguished from the other face of the frame which may be called the wet towel face. Spaced some little distance below the feed roller 11 and extending between and mounted within the uprights adjacent the wet towel face of the frame is an upper spiral roller 38. A similar lower spiral roller 39 is mounted within the uprights to extend between the same below and inward from the roller 38. These two rollers 38 and 39 have spiral ribs or ridges 38a and 39a respectively, which run from the ends of the rollers to the central portions thereof. The spirals or ridges extending from the left upright 8 as viewed in Fig. 1 toward the centers of the rollers 38 and 39 progress in a counter clockwise direction toward the centers of these rollers, as viewed in Fig. 2, and the spirals

extending from the other upright 8 progress in a clockwise direction toward the centers of these rollers as similarly viewed.

About level with the lower spiral roller 39, oppositely disposed brackets 40 and 41 respectively, are secured to the edges of the uprights 8 on the wet towel face of the frame. A rod 42 having ends bent as best shown in Fig. 6 extends between and is secured to the two brackets 40 and 41. The medial portion of this rod extends outwardly from and slightly above the said two brackets. Pivotaly mounted on the bracket 40 in inwardly disposed relation from the medial portion of the rod 42 is a swinging rod 43, the free end of which is normally under spring tension to move toward the wet towel face of the frame. The bracket 40 is provided on its upper surface with a notch within which the adjacent portion of the rod 43 may fit, while the bracket 41 as best shown in Fig. 6 is provided with a bayonet slot 41a within which the free end of the rod 42 may fit. The resilient tension of the rod 43 will hold the same locked within the bayonet slot 41a when the rod is lowered to the full line position shown in Figs. 2, 3 and 7. It will be understood that the rod can be unlatched from the bracket 41 and swung upwardly to the dotted line position shown in Figs. 3 and 7 when desired.

If desired, reinforcing plates 44 may be applied to the uprights 8 adjacent the feed roller 11. Also if desired, hooks 45 to receive the rod 14 and any toweling that may be wound thereon when the rod is removed from the grooves 12, may be secured to the edges of the uprights 8 above the grooves 13.

The various rollers 11, 38 and 39 all have trunnions which project beyond the left upright 8 as viewed in Fig. 1. Mounted on the top slat 9 is an electric motor 46, the armature shaft of which carries a double pulley 47. Secured to the projecting trunnion of the feed roller 11 is a pulley block forming a large pulley 48, an intermediate pulley 49 and a smaller pulley 50, pulley 48 being in line with the outer groove of pulley 47 and pulley 49 being in line with the inner groove of pulley 47. Secured to the projecting trunnion of lower spiral roller 39 is a pulley 51 in line with pulley 50. Also secured to this same projecting trunnion is a sprocket 52, while secured to the projecting trunnion of upper spiral roller 38 is a sprocket 53 in line with sprocket 52. A sprocket chain 54 runs over the two sprockets 52 and 53. With the machine there is provided an endless straight belt 55 which may run over the pulley 49 and the groove of the pulley 47 in line therewith to drive the feed roller 11 in the same direction as the direction of rotation of the motor or in a clockwise direction as viewed in Fig. 2. There is also provided a cross belt 56 as shown in Fig. 3 which may run over the pulley 48 and the groove of the pulley 47 in line therewith to drive the feed roller 11 in an opposite direction from the direction of rotation of the motor or in a counter-clockwise direction as viewed in Fig. 2. It will be noted that the belt 55 when used will drive the feed roller 11 at a higher speed than the belt 56 when used. There is also provided for use when the cross belt 56 is in use, an endless belt 57 as shown in Fig. 3, which may run over the two pulleys 50 and 51, to drive the two spiral rollers in the same direction as the feed roller 11.

Operation

When the winding device is to be used for winding wet toweling, as for example when in a

laundry the toweling is delivered from a washing machine, the cross belt 56 and the belt 57 will be used and applied as shown in Fig. 3, and as previously described. Rod 43 will then be unlatched and raised to its upwardly swung position, whereupon a free end of the wet toweling will be first carried over rod 42 then inwardly and upwardly over the inner surface of the spiral roller 39, then outwardly and upwardly over spiral roller 38 and thence to the rod 14, whereupon a small quantity of the toweling will be wound on this rod. The swinging rod 43 may then be swung downwardly and engaged in the bayonet slot 41a whereupon the motor 46 may be set in operation. The toweling will then be drawn over rod 42 and under rod 43 and directed to the lower spiral roller 39 whereupon it will pass upwardly over the lower spiral roller 39 and thence over the upper spiral roller 38 to be wound upon the core 14. The lower spiral roller 39 will run at a somewhat lower speed than the speed of travel of the toweling thereover and the spirals 39a working from the center toward the ends of the roller will act to smooth the crinkles out of the toweling. The roller 38 rotates in an opposite direction from the direction of travel of the toweling thereover and the spirals 38a of this roller working from the center of the roller towards the ends thereof, act to even and smooth and practically iron the toweling immediately before it is carried to the rod 14. The two rollers 39 and 38 act together to take care of any crinkles or folds that may be found in the toweling and the roller 39 acts to prepare the toweling by taking out the major crinkles thereof before it is carried to the roller 38 where the final smoothing is done before the toweling is carried over roller 11. After a towel has been completely wound on the rod 14, the rod may be withdrawn from the slots 12 and 13, slid out of the roll of toweling and reinserted in place.

When it is desired to wind dry toweling with the device, the toweling as it is carried from the ironer will be run to the device. Preparatory to the time that the dry toweling is carried to the device, the disk 32 and the plate 35 will be set on the rods 30 and 34 respectively to gauge the same for the width of the particular toweling to be wound. Also the latch bars will be released from the latch plates 24 and the fluted block 23 together with the U-shaped bar 22 will be drawn outwardly from the full line position shown in Fig. 3 to the dotted line position there shown. Also the two belts 56 and 57 will be removed from the device and the straight belt 55 shown in Fig. 1, will be used between the pulley 47 and the pulley 49.

The dry toweling will be carried upwardly inwardly from the rod 28 and outwardly from the rod 30 between the two fluted blocks 16 and 23 to the rod 14 upon which a portion of the toweling will be wound. The block 23 together with the bar 22 will then be slid inwardly in the guides 21 until the latch bars 25 engage the latch plates 24 to lock the block 23 in inwardly slid relation. The springs 20 then urge the block 16 toward the block 23 to cause the two blocks to exert frictional tension on the toweling therebetween. This tension can be adjusted by means of thumb screws 18 to cause the toweling as it is later wound into a roll to be wound under the proper tension for proper use with the particular towel cabinets for which it is intended. The motor 46 may then be set in operation to cause the feed roller 11 to rotate in a clockwise direction

as viewed in Fig. 2. The toweling will then pass upwardly behind the rod 28 over the rod 30 and it will be guided by the gauging guide disk 32 upwardly to a point between the two fluted blocks 16 and 23. It will pass over the corrugations of these blocks under tension and will then be carried to the rod 14 where it will be wound into a properly tensioned roll. The gauging guide plate 35 cooperating with the gauging guide disk 32 maintains the towel web in proper position to be wound on the rod 14 without skewing. After the toweling is completely wound on the rod 14, the rod 14 with the roll of toweling thereon may be withdrawn from the slots 12 and 13, the rod slipped out of the roll and reinserted in place.

The winder of the present invention has been successfully demonstrated in actual practice. The device is quite simple in construction and in operation and serves the requirements for both a wet towel winder and a dry towel winder in a laundry.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of the present invention, which, generally stated, consists in the matter shown and described and set forth in the appended claims.

What is claimed is:—

1. A towel winding device comprising a pair of uprights, a feed roller extending between the same and mounted for rotation therein, said uprights having grooves therein above said feed roller, a winding core mounted in said grooves and resting on said feed roller, a tensioning member mounted in said uprights below said feed roller and over which toweling may travel in its passage to said core, a cooperating tensioning member slidably mounted on said uprights for extension to and from said first mentioned member, a rod extending between said uprights below said first mentioned member and a cooperating rod carried by said sliding member for extension to and from said first mentioned rod whereby when said sliding member is extended from said first mentioned member toweling may be carried over said first mentioned rod and over said first mentioned member to said core and said sliding member may then be slid toward said first mentioned member to cause the same and said second mentioned rod to engage the toweling.

2. A towel winding device comprising a pair of spaced uprights, a feed roller extending between and journaled within said uprights, a winding core, means above said feed roller for guiding said core to and from said feed roller to rest thereon, a first spiral roller mounted below said feed roller and having right and left hand spiral ridges thereon extending respectively from the ends of the roller to the center thereof, a similar second spiral roller, means for driving said feed roller and means for driving said two spiral rollers in the same direction but at slower speed than the speed of travel of said feed roller whereby toweling may be passed over the rear portion of said second spiral roller and over the forward portion of said first spiral roller and thence to said core, and one of said spiral rollers will be rotated in the same general direction as the direction of movement of toweling running thereover and the remaining spiral roller will be rotated in a direction opposite to the direction of toweling running thereover.

3. A towel winding device comprising a pair of uprights, a feed roller mounted therein for

rotation, a winding core, means above said feed roller receiving said winding core and permitting upward and downward movement thereof relative to said roller to rest thereon, a fluted block 5 below said feed roller and extending between said uprights, a mating fluted block, means for slidably mounting said last mentioned block for sliding movement to and from said first mentioned block to permit toweling to be carried between said blocks to said core, means for locking said last mentioned block in position adjacent said first mentioned block, resilient means urging one of said blocks toward the other of said blocks 80 when said second mentioned block is locked in position and means for driving said feed roller.

SAMUEL A. SCHWARTZ.

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65	140
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75	150