No. 851,938. PATENTED APR. 30, 1907.

R. W. HULL.

MACHINE FOR UNWINDING, MEASURING, AND REWINDING ROLLS OF SHEET MATERIAL.

APPLICATION FILED APR. 29, 1905.

2 SHEETS—SHEET 1.

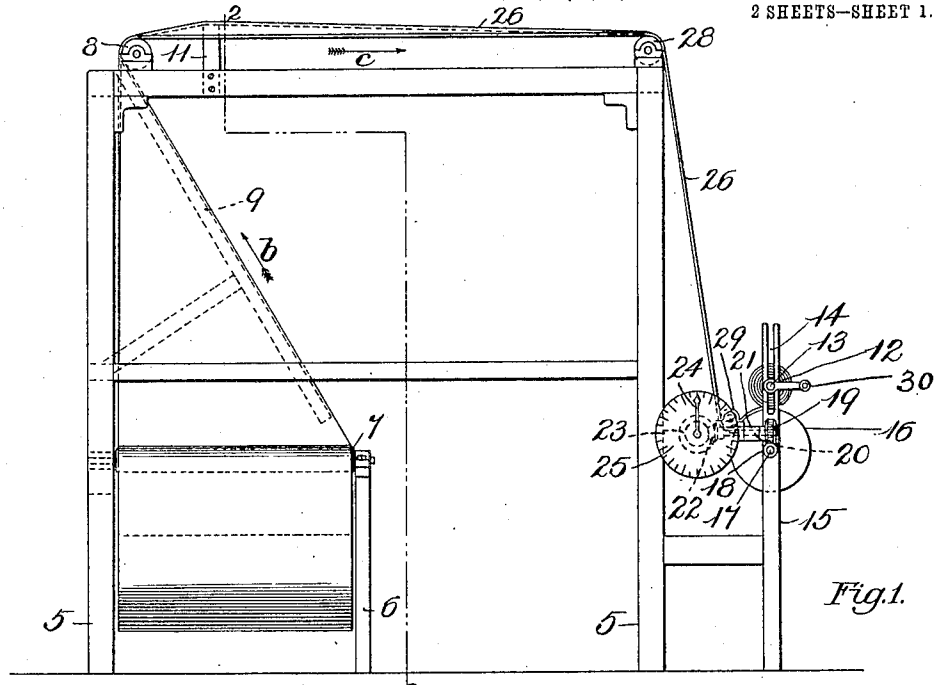

Fig. 1.

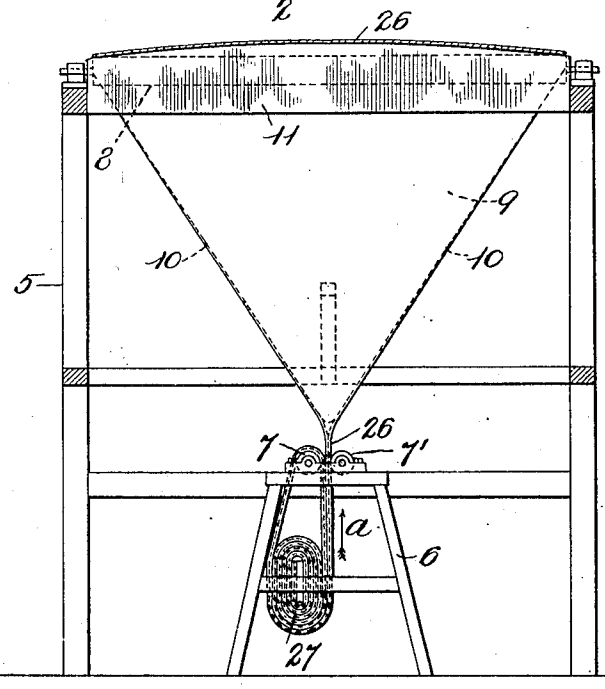

Fig. 2.

Witnesses:
Louis A. James.
Sydney E. Taft.

Inventor:
Robert W. Hull
by his attorney
Charles S. Goodin.

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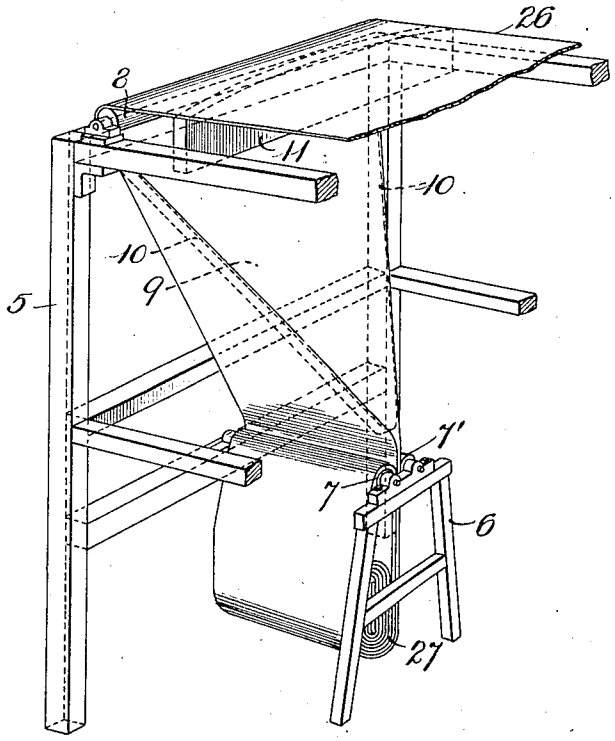
2 SHEETS—SHEET 2.

Fig. 3.



Witnesses:
Louis A. Jones.
Sydney E. Taft.

Inventor:
Robert W. Hull
by his attorney. Charles S. Gooding.

UNITED STATES PATENT OFFICE.

ROBERT W. HULL, OF BOSTON, MASSACHUSETTS.

MACHINE FOR UNWINDING, MEASURING, AND REWINDING ROLLS OF SHEET MATERIAL.

No. 851,938. Specification of Letters Patent. Patented April 30, 1907.

Application filed April 29, 1905. Serial No. 257,997.

To all whom it may concern:

Be it known that I, ROBERT W. HULL, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Machines for Unwinding, Measuring, and Rewinding Rolls of Sheet Material, of which the following is a specification.

The object of this invention is to provide a machine for unrolling a web of cloth, so that the same may be exposed to view for examination and then rewinding said cloth upon another roll and measuring the length of said cloth.

The object of the invention is further to provide a machine which will unwind from a roll, cloth which is doubled longitudinally thereof, spread the two adjacent edges of said cloth apart, smooth out the single sheet thus obtained, and rewind the cloth in a single thickness upon a roll, incidentally exposing said cloth to view for examination between the points where it is unwound and where it is again wound and measuring the length of the cloth thus wound.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a side elevation of my improved machine for unrolling, measuring and rolling up cloth. Fig. 2 is a section taken on line 2—2 of Fig. 1, looking toward the left in said figure. Fig. 3 is a perspective view of a portion of said machine, illustrating the unwinding and spreader rolls and a portion of the frame upon which they are supported.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 5 is the main frame.

6 is an auxiliary frame for supporting the unwinding rolls.

7, 7′ are unwinding rolls, parallel to each other and journaled at their opposite ends in boxes supported upon the frames 5 and 6, respectively. 8 is a spreader roll which extends transversely of said unwinding rolls and is located with its periphery at the left of Fig. 1 in a vertical plane with the left hand end of the unwinding rolls 7, 7′. The spreader roll 8 is journaled in suitable bearings supported upon the frame 5. A V-shaped guide 9 is located between the unwinding rolls and the spreader roll, the sides 10, 10 converging toward a vertical plane extending longitudinally of and between the unwinding rolls 7, 7′. Said V-shaped guide 9 stands at an angle to a vertical plane, as will be seen in Fig. 1, with its lower end adjacent to the right hand end of the unwinding rolls 7, 7′ and with its upper end adjacent to the spreader roll 8. A stationary and convexly curved spreader 11 extends across the frame 5 and is fastened thereto parallel to the spreader roll 8 and adjacent thereto.

The cloth is wound as a final operation upon a rewinding roll 12 fast to a shaft 13 which projects into slots 14 formed in standards 15. The periphery of the roll 12 or of the cloth wound thereon rests upon an indicator roll 16 fast to a shaft 17 journaled to rotate in the standards 15. Said shaft 17 has a worm 18 fast thereto which meshes into a worm gear 19. The worm gear 19 is fast to a shaft 20 journaled to rotate in bearings formed in a bracket 21 fast to one of the standards 15. A bevel pinion 22, fast to the shaft 20, meshes into a bevel gear 23, fast to the indicator hand 24, said hand being arranged to pass over an indicator dial 25 to indicate the length of cloth wound upon the rewinding roll 12.

The general operation of the mechanism hereinbefore specifically described is as follows: The cloth or other sheet fabric 26, which is doubled longitudinally thereof and wound in the form of a bale or roll of cloth 27, passes upwardly from said bale (Fig. 2) between the unwinding rolls 7, 7′, and passing partly around the roll 7 returns downwardly around the under side of the bale 27, and then passing upwardly in the direction of the arrow *a* (Fig. 2) passes between the unwinding rolls 7, 7′ and thence in the direction of the arrow *b* (Fig. 1) to the spreader roll 8, the two edges of said cloth being spread apart by the guide 9 before reaching the spreader roll 8. By the time that the cloth reaches the roll 8 it has been spread by the V-shaped guide 9 into the form of a single thickness or web of cloth, and then passes from said spreader roll 8 over the stationary spreader 11, which, having a convexly curved upper edge, tends to smooth the cloth out in its central portion and remove any wrinkles therefrom. The web of cloth then moves in the direction indicated by the arrow *c*, (Fig. 1), over a guide roll 28 downwardly around a guide roll 29, said guide roll 29 being an idler and jour-

naled to rotate upon bearings formed in the bracket 21, thence partly around the indicator roll 16 to the rewinding roll 12, to the periphery of which roll the end of the cloth 26 is fastened.

The rewinding roll 12 is rotated by means of a handle 30 fast to the shaft 13 and as said roll is rotated the cloth is wound thereon and by frictional contact with the roll 16 causes the same to rotate, thus rotating the shaft 17, worm 18, worm gear 19, shaft 20 and bevel gears 22 and 23, whereby the indicator hand 24 is moved over the face of the indicator dial 25 to indicate the length of cloth which is rolled upon the rewinding roll 12.

It will be seen and understood that the particular manner in which the cloth is led from the bale hereinbefore described prevents the cloth from unwinding from said bale any faster than is required, as indicated in the operation of the machine by the pull upon the cloth caused by the rotation of the rewinding roll.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. In a machine for unwinding sheet material from a bale on which said material is doubled longitudinally thereof, unfolding said material, and rewinding said material in its unfolded state, a pair of parallel unwinding rolls adjacent to each other, a spreader roll for unfolding said sheet material, said spreader roll extending transversely of said unwinding rolls, a rewinding roll parallel to said spreader roll, and a convexly curved stationary spreader located between said spreader roll and said rewinding roll.

2. In a machine for unwinding sheet material from a bale on which said material is doubled longitudinally thereof, unfolding, measuring, and rewinding said material in its unfolded state, a pair of parallel unwinding rolls, a spreader roll extending transversely of said unwinding rolls, a V-shaped guide located between said unwinding rolls and spreader roll, a rewinding roll parallel to said spreader roll, a convexly curved stationary spreader located between said spreader roll and unwinding rolls, an indicator, an indicator roll, mechanism operatively connecting said indicator roll and indicator, said rewinding roll resting upon the periphery of said indicator roll and movable toward and away therefrom.

3. In a machine for unwinding sheet material from a bale on which said material is doubled longitudinally thereof, unfolding, measuring, and rewinding said material in its unfolded state, a pair of parallel unwinding rolls, a spreader roll extending transversely of said unwinding rolls, a V-shaped guide located between said unwinding rolls and spreader roll, a rewinding roll parallel to said spreader roll, a convexly curved stationary spreader located between said spreader roll and rewinding roll, an indicator, an indicator roll, mechanism operatively connecting said indicator roll and indicator, said rewinding roll resting upon the periphery of said indicator roll and movable toward and away therefrom.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT W. HULL.

Witnesses:
CHARLES S. GOODING,
ANNIE J. DAILEY.