(No Model.)

E. HALL.

CLOTH FOLDING MACHINE.

No. 604,749. Patented May 31, 1898.

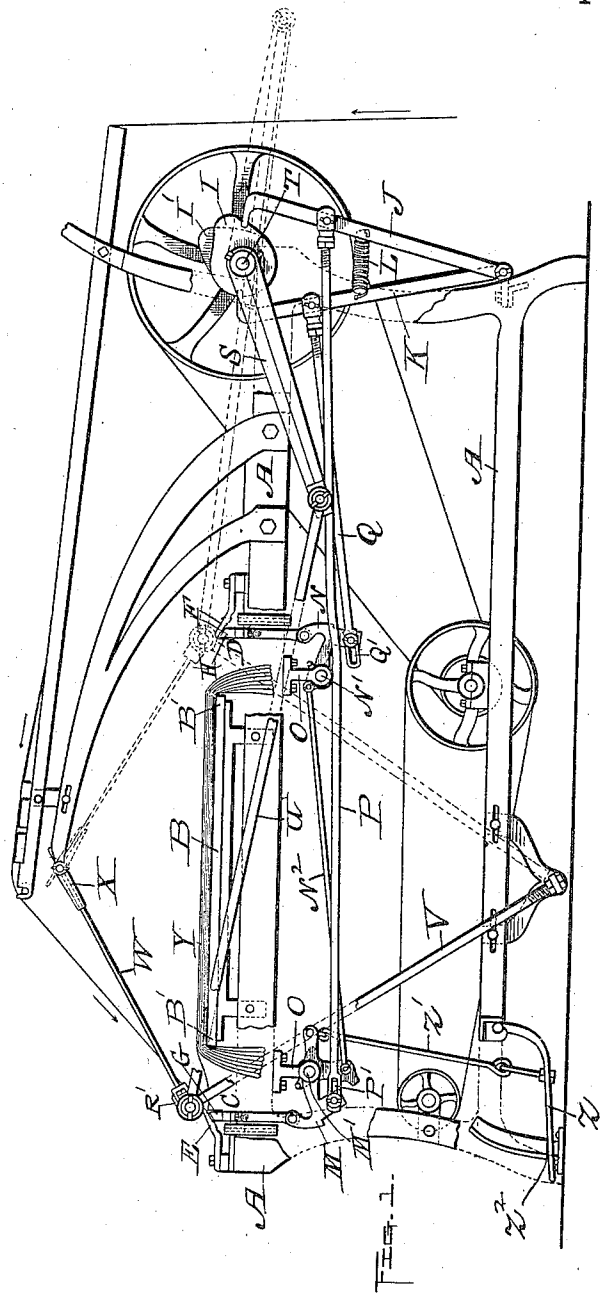


Fig. 1.

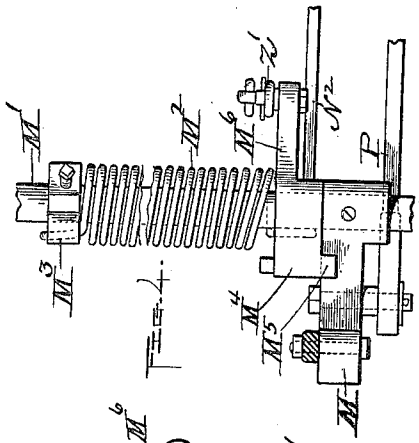


Fig. 4.

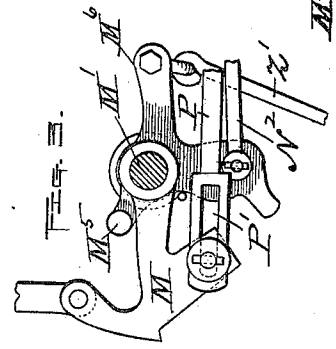


Fig. 3.

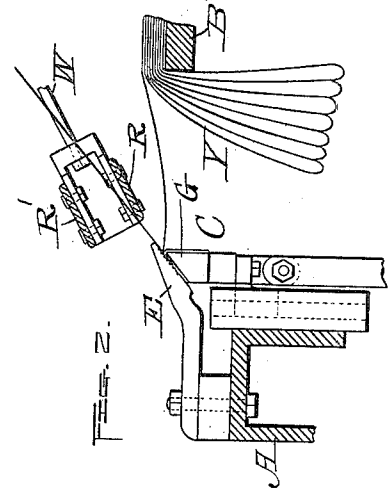


Fig. 2.

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UNITED STATES PATENT OFFICE.

EDWARD HALL, OF WORCESTER, MASSACHUSETTS.

CLOTH-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 604,749, dated May 31, 1898.

Application filed April 19, 1897. Serial No. 632,721. (No model.)

To all whom it may concern:

Be it known that I, EDWARD HALL, of the city and county of Worcester and State of Massachusetts, have invented certain new useful Improvements in Cloth Folding and Measuring Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a side view of so much of a cloth folding and measuring machine as is necessary to illustrate my improvements, portions thereof being broken away to more fully illustrate my said improvements. Fig. 2 is an enlarged view showing a longitudinal section through a part of the machine at the left-hand end of Fig. 1, the two following figures also being upon the same enlarged scale. Fig. 3 is a side view, partly in section, of part of the mechanism for operating the movable jaw of the machine, shown also at the left-hand end of Fig. 1; and Fig. 4 is a plan of the parts shown in said Fig. 3.

My invention relates more especially to machines for folding and measuring cloth of a slippery wiry nature, which curls up and does not lie flat at the folds in the operation of folding and measuring the same; but it is equally applicable for folding and measuring other kinds of cloth.

As is well known by those skilled in the art to which my invention appertains, cloth of the above slippery wiry nature—such as gloria, silk, and similar goods—will not lie flat at the folds, but curls up one fold over another, so that after a number of folds have been laid on the bed or table quite a high ridge is formed across each end of the folded cloth. Owing to this fact each successive layer of cloth laid after the first few is liable to slip or roll back upon itself before it is caught and held between the jaws, and the consequence is that the different folds of cloth are laid in uneven lengths. The tendency to slip and roll back, as aforesaid, is also aggravated or increased by the friction of the folding-blade against the cloth in its return movement after carrying each fold forward to the holding-jaws. The foregoing objection arises, as will be understood, when the cloth is folded on a bed or table extending close up to the jaws and upon which the folds of the cloth are laid in the usual folding and measuring operation. To overcome said objection is the main purpose of my invention, which I accomplish by constructing the machine as follows and as shown in the drawings.

Referring thereto, A reprsents the main frame of the machine, upon which is mounted the bed or table B that the cloth is folded upon, in this instance said table being shown fastened in a level position and made of the proper length to leave quite a space between the ends B′ B′ thereof and the jaws C D, so that the cloth when folded thereon may drop down at the folded ends out of the way, as is shown in the drawings.

The parts marked E F represent the stationary jaws, and G H the movable jaws. The latter are elevated and lowered by the action of cams I I′ through the levers J K, spring L being attached to both levers and adapted to draw the levers toward each other against their respective cams, crank-levers M N, pivoted on shafts M′ and N′, fitted to turn in stationary bearings O O on frame A, and connecting-rods P Q, the rod P connecting lever J with crank-lever M, and rod Q connecting lever K with crank-lever N, the crank-lever M being in turn connected with the movable jaw G, while the crank-lever N is connected with movable jaw H. The folding-blades R R′ are mounted in the usual swivel or swinging frame, consisting of the crank-lever S, (mounted and secured on the same shaft T as cams I I′,) pivoted rods U, V, and W, and swivel-bearing X, said swivel or swinging frame being adapted to be reciprocated forward and back by the action of its crank-lever S to alternately insert first one blade, R, between the jaws E G and then the other, R′, between the jaws F H in the operation of folding the cloth Y on the bed or table B.

The cams are made of the proper shape and the other parts so constructed and timed in practice as to cause the movable jaws to be lowered to release the previous fold placed therein by the blades some little time before the blades reach the jaws, thus giving ample time and opportunity for the fold to drop down out of the same away from the incoming blade carrying the next fold and then quickly ascending again in time to close the

jaws immediately after the blades pass out from between the same to grip the fold left therein and hold it until the proper time for it to be released and allowed to drop down out of the way, as aforesaid. One fold is thus gripped in one set of jaws while the folding-blade is carrying the cloth over to the other set of jaws and is returning to insert the next fold therein, as previously described.

By thus providing for the folded ends of the cloth dropping down away from the jaws and folding-blade and hanging from the ends of the bed or table, as shown in the drawings, rather than lying thereon, as usual, each fold may be measured off accurately and then dropped down out of the way of each succeeding fold laid, and therefore when the pile of cloth is laid out flat after having been folded and measured each fold is of exactly the same length, a fact which I have fully demonstrated in practice, whereas by the old method heretofore employed of folding the cloth on a bed or table extending close up to the holding-jaws upon which the whole length of each fold is laid quite a variation in the lengths of the folds occurs, said variation increasing as the height of the pile of cloth increases by laying one fold upon another.

Upon the shaft M′ of the crank-lever M is arranged the usual torsion-spring M^2, secured at one end to a bearing M^3, fastened to the shaft, and at its other end adapted to bear upon the top of the crank-lever m^4, arranged next to the crank-lever M and having a laterally-projecting stud M^5, adapted to bear on the top of said crank-lever M, except when held elevated therefrom by the foot-treadle Z, which is connected by a rod Z′ with an arm M^6 on said crank-lever M^4. The stud M^5 is thus held during the operation of the machine a little above the lever M (by passing the foot-treadle Z under a shoulder Z^2 of frame A) for the purpose of permitting a free upward action of the levers M N and the jaws G H, with which they connect, so that the spring M^2 may force said jaws up tight against the upper jaws to securely hold the cloth fold between them at the end of each forward throw of the cams I I′. In order to allow of said action of the spring, the levers M N and their jaws are independent of the operating-cams and their levers, each lever being slotted at P′ and Q′, respectively, where they connect with said levers M N, as is shown in Figs. 1 and 2.

It will of course be understood that only one torsion-spring M^2 is used, the action thereof being communicated through the rod N^2 from the crank-lever M^4 to the crank-lever N to operate the jaw H from said spring, as usual.

The construction and operation of the folding-blades and their supporting and operating frame and also the general construction of the holding-jaws and their connections with the torsion-spring are somewhat similar to other machines with which I am familiar; but I am not aware that a direct connection of the connecting-rods P Q with the crank-levers M N, as in this instance, has heretofore been adopted, or the construction and arrangement of the various parts of the machine so modified as to allow of a space between the folding-table and jaws sufficient to accomplish the result herein specified—viz., of permitting each successive fold of cloth as it leaves the jaws to drop down out of the way, so as not to affect the accurate measurement of the cloth in the folding operation. This is an important feature, as I am thereby enabled to fold and measure cloth of the most slippery wiry nature with perfect accuracy, a result which has not heretofore been accomplished with said class of goods, while at the same time the machine is equally applicable for folding and measuring any other desired kind of goods.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a cloth folding and measuring machine, the combination of table B and frame A, stationary jaws E F mounted transversely thereon in front and back of table B and the movable jaws G H having means for operating them vertically toward and from said stationary jaws E F, said table being shorter than the distance between the jaws to leave sufficient space between the ends of said table and the jaws to permit the folded ends of the cloth to drop down below the level of the table and hang loose between said table and jaws after each fold is laid in the folding and measuring operation, substantially as and for the purpose set forth.

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