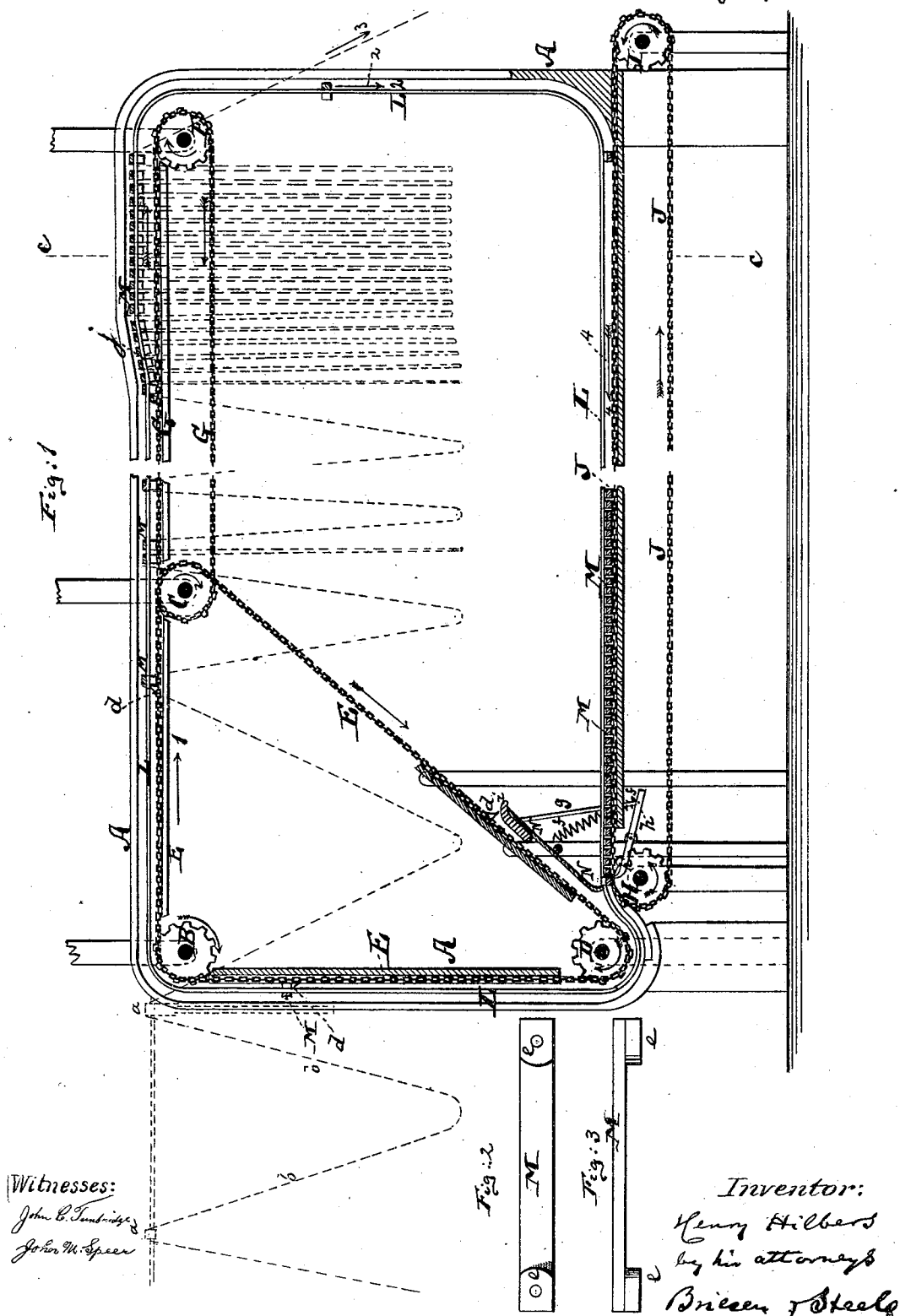


H. HILBERS.

APPARATUS FOR DRYING WALL PAPER.

No. 277,033.

Patented May 8, 1883.



(No Model.)

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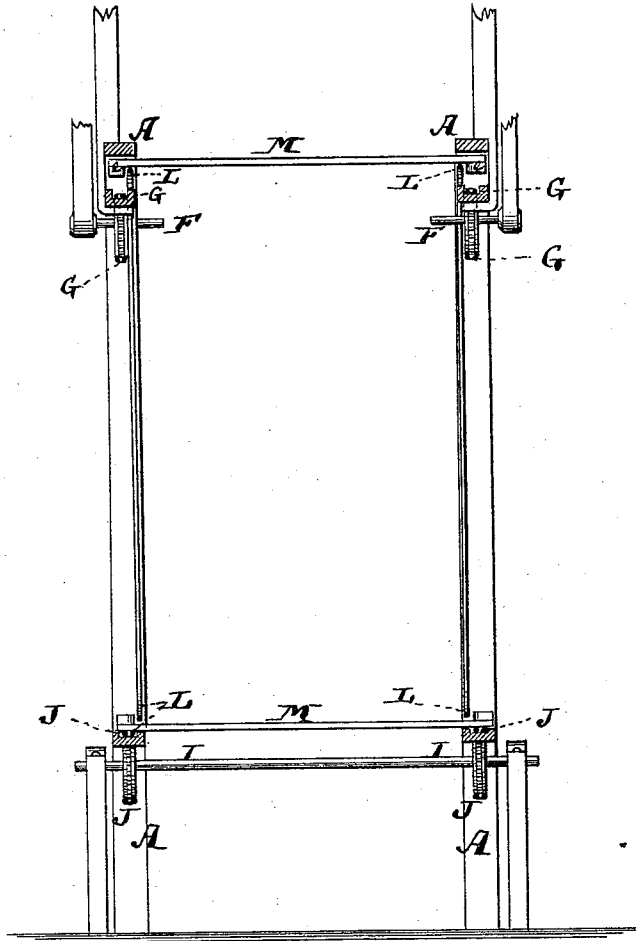
2 Sheets—Sheet 2.

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Fig: 4



Witnesses

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UNITED STATES PATENT OFFICE.

HENRY HILBERS, OF FLUSHING, NEW YORK.

APPARATUS FOR DRYING WALL-PAPER.

SPECIFICATION forming part of Letters Patent No. 277,033, dated May 8, 1883.

Application filed January 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY HILBERS, of Flushing, in the county of Queens and State of New York, have invented an Improved Apparatus for Drying Wall-Paper, of which the following is a specification.

Figure 1 is a sectional elevation of my improved apparatus for drying wall-paper. Figs. 2 and 3 are bottom and side views, respectively, of the sliding conveyers employed by me in said apparatus; and Fig. 4 is a vertical cross-section of the apparatus on the line *cc*, Fig. 1.

This invention relates to certain improvements in the apparatus for drying wall-paper which has been previously invented by me, and of which a description is contained in Letters Patent No. 257,703, dated May 9, 1882.

The object of the present invention is to provide for a more ready disengagement of the paper-conveying cross-bars from the paper that has been thoroughly dried and is to be wound upon the receiving-drum.

The new machine invented by me and hereinafter described can either be used alone as a drying-machine or in connection with the main portion of the machine, which has been described in said patent.

The invention consists, principally, in the employment with endless rails of separate traveling cross-pieces and of chains or belts for moving said traveling cross-pieces horizontally and vertically, all as hereinafter more fully described; also, in a certain novel click arrangement for regulating the order in which these traveling cross-pieces are taken up by the vertical carriage.

In the accompanying drawings, the letters *a* indicate conveyers—such as are described in the above-mentioned Patent No. 257,703—and on these conveyers hangs the paper *b*; but instead of taking it directly from these conveyers to the drum upon which it is wound, I now interpose between them and said drum the machine which constitutes the subject of this application; or, as already stated, the paper may directly from the printing or coloring apparatus be delivered to the machine that forms the subject of the present invention.

In this machine there are two vertical frames, *A A*, both of which are upright and braced or supported in proper manner, and which constitute supports for the shafts *B C D*, that

carry drums or wheels around which travel endless chains or belts *E*, which I call the “elevator-chains,” because they act in the machine principally through their vertical portions that extend from the shaft *D* to the shaft *B*, although they also act by the upper horizontal portions between the shafts *B* and *C*. In said frames *A A* are likewise the bearings of another shaft, *F*, which carries drums around which are laid endless belts or chains *G*, that also extend around pulleys on the shaft *C*. The endless belts or chains *G* are practically horizontal continuations of the horizontal parts of the elevator-chains *E*. In the frames *A A* are likewise bearings for shafts *H* and *I*, upon which are laid endless belts or chains *J*, which are below the belts or chains *G*, as shown in Fig. 1. Each frame *A* has on its inner side an endless rail or wire, *L*, which rails are properly fastened by brackets or otherwise to said frame, and which serve to support, in part at least, the paper-conveyers *M M*. Fig. 4 shows the upper conveyer *M* resting upon the two rails *L L*, while the lower conveyer in Fig. 4 is below said rails and rests on the chains *J*, all of which also appears clearly from Fig. 1.

The elevator chains or belts *E* have each three (more or less) projecting prongs, *d*, by which the paper-conveyers *M M* are moved along in manner hereinafter described. The chains *G* have no such prongs, at least not necessarily, although they may have them, if desired; nor have the chains *J* any such prongs, although they may have them with greater or less advantage, if desired. The paper being delivered to the first conveyer *M*, that lies on the rails *L*, above the horizontal part of the chains *E*, is moved along in the direction of the arrow 1, Fig. 1, by the prongs *d*, behind it, until it is delivered by the chains *E* to the chains *G*, which have no such prongs, but on which downwardly-extending end parts, *ee*, of the conveyer *M* rest, the chains *G* being for part of their length sufficiently close to the rails *L* as to allow the conveyers at this part to reach the chains *G* and rest on them with their projections *e*. These conveyers *M*, so resting on the chains *G*, are moved along on the chains *G* until brought to a slightly-ascending portion, *j*, of the rails *L*, to which they are delivered by the chains *G*, and on which they must afterward travel along, without be-

ing further in contact with any chains or belts by being pushed forward by the newly-arrived conveyers. The paper at this place hangs in close folds, as shown in Fig. 1, and when the rails 5 L, above the chains G, are full of such conveyers carrying the paper the conveyer first received upon such rails is finally pushed downward in the direction of the arrow 2 in Fig. 1 and drops upon the chains J. Instead of al- 10 lowing the conveyers M M to thus find their way to the chains J, their movements may be assisted by the action of the paper itself that is being wound upon a suitable drum—that is, the paper being drawn in the direction of the 15 arrow 3, Fig. 1, by a suitable winding-drum—will of course facilitate the movement of the outermost conveyer until the same drops off the paper and falls upon the chains J. On the chains J the conveyers that arrive upon it are 20 moved in the direction of the arrow 4 toward the lower parts of the elevators E, and in due course of time are taken up by a set of prongs, *d*, on the said elevators E and lifted to the upper horizontal part of said elevators, where 25 they engage with a fold of the paper, and are then utilized to carry the paper along, in manner already described.

In order to prevent the elevators E from lifting at any one place more than one single 30 conveyer M, I have placed into the path of the conveyers M M, that lie in closed rank on the chains J, a detent-lever, N, which is normally held against the nearest conveyer M by the action of a spring, *f*. To this detent N is 35 connected by a rod, *g*, a lower detent, *h*, which is also pivoted, and which has its engaging-point directly below the space between the first and second conveyer M, lying on the chains J nearest the shaft H. As the chains 40 E travel in direction of the arrows in the drawings one set of prongs, *d*, will, on the inclined portion of said chain between the shafts C and D, finally reach contact with an inclined projection, *i*, of the detent N, and will, by 45 crowding against said detent, cause the lower end thereof to leave its contact with the first conveyer M; but at the same time the detent *h* will be raised to enter into contact with the second conveyer M. Thereupon the first con-

veyer M, which has been released by the de- 50 tent N, is carried along by the remaining part of the chains J, or drops of its own weight into the lower part of the railing L L, enabling the chains E to take it up in manner stated. As soon as the conveyer has thus been 55 delivered to the chains E the prong *d*, that released the detent N, will leave its contact with the said detent, and will allow the spring *f* to bring said detent N down again where it will arrest the now first conveyer M on the chains 60 J, which conveyer is, by the motion of the chains J, brought forward to contact with N. The detent *h* is lowered out of the way at the same time that the detent N is lowered into engagement. By this means the order of the 65 conveyers M M on the chain E is always correct, and the taking up of two or more such conveyers avoided.

I claim—

1. In an apparatus for drying paper and 70 analogous fabrics, the combination of the endless rails L L with the separate conveyers M M and with the elevator-chains E, having prongs *d*, and with the lower conveyer-chain J, all arranged for operation substantially as de- 75 scribed.

2. The detent N, combined with the spring *f*, rod *g*, and lower detent, *h*, in combination with the endless chains E, having prongs *d*, and with the chains J and conveyers M, sub- 80 stantially as and for the purpose specified.

3. The conveyers M, made with downwardly-extending portions *e*, in combination with the rails L and chains E and G, all arranged so that the portions *e* of the conveyers may rest 85 on the chains G, substantially as described.

4. The combination of the chains G with the rails L, having inclined parts *j*, and with the conveyers M, having projecting parts *e*, sub- 90 stantially as herein shown and described.

5. The combination of the endless rails L L with the chains E, having prongs *d*, and chains G J, for operation substantially as herein shown and described.

HENRY HILBERS.

Witnesses:

HARRY M. TURK,
WILLY G. E. SCHULTZ.