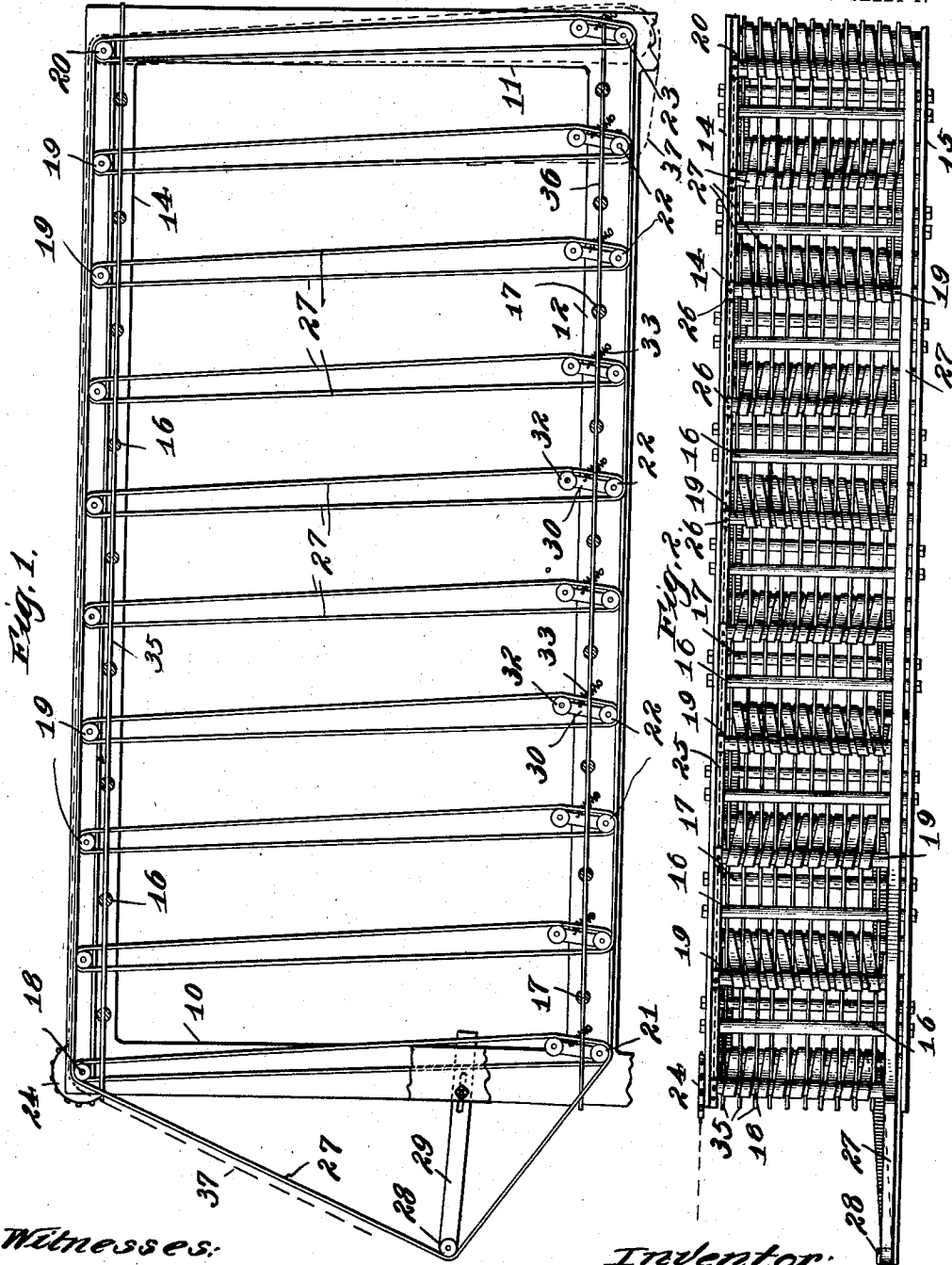


F. B. THOMPSON.
 FILM DRYING MACHINE.
 APPLICATION FILED JAN. 28, 1909.

939,350.

Patented Nov. 9, 1909.

3 SHEETS—SHEET 1.



Witnesses:

W. A. Pankerschmidt
E. L. Gibson

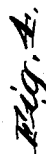
Inventor:

Fredrick B. Thompson
Gilleson & Gilleson
 Attys.

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939,350.

3 SHEETS—SHEET 2.



G. A. Paulschmidt
E. F. Gilson

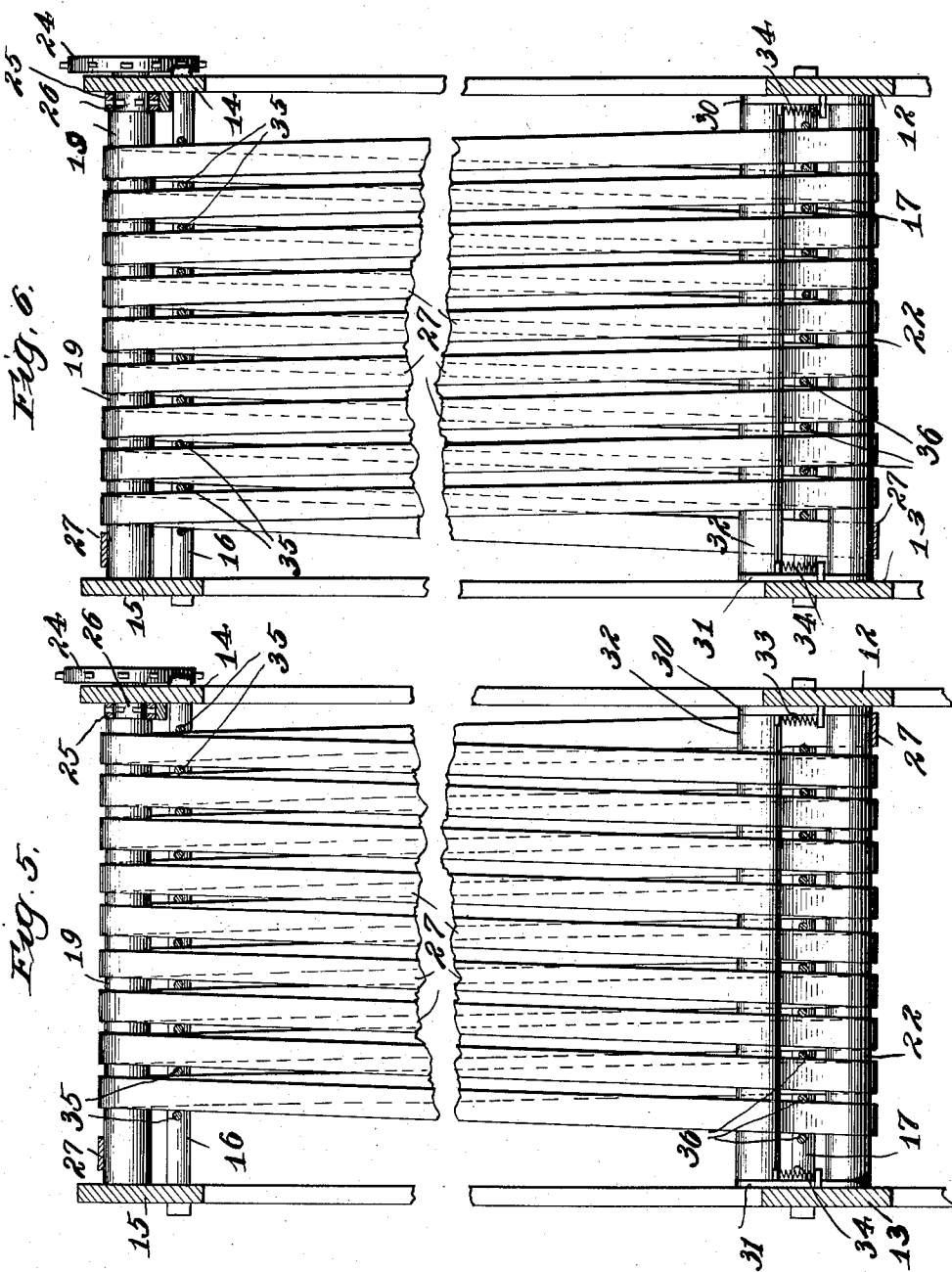
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 3 SHEETS—SHEET 3.



Witnesses.
 G. A. Sanderschmidt
 E. F. Gilson

Inventor:
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UNITED STATES PATENT OFFICE.

FREDRICK B. THOMPSON, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO NATIONAL WATERPROOF FILM COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FILM-DRYING MACHINE.

939,350.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed January 28, 1909. Serial No. 474,795.

To all whom it may concern:

Be it known that I, FREDRICK B. THOMPSON, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Film-Drying Machines, of which the following is a specification.

My invention relates to an apparatus for drying continuous photographic films, such as are used in connection with moving picture machines. Its object is to provide means for carrying the film after one of its faces has been coated until such coating shall have dried.

The invention may be embodied in a structure such as hereinafter described, and as illustrated in the accompanying drawings, in which—

Figure 1 is a detail vertical longitudinal section of the machine on the line 1—1 of Fig. 2, some of the parts being broken away; Fig. 2 is a detail plan of the machine on a comparatively small scale; Fig. 3 is a detail plan of the machine on a larger scale, some of the parts being broken away and others being omitted for the sake of clearness; Fig. 4 is a detail sectional view on the line 4—4 of Fig. 3; and Figs. 5 and 6 are transverse vertical sections on the line 5—5 and 6—6 respectively of Fig. 3.

The machine is, generally speaking, oblong rectangular in contour, and is provided with a suitable frame, shown as consisting of corner uprights, as 10, 11, side sills 12, 13, and top rails 14, 15. The two sides of the frame are united by cross rods, as 16, 17. Mounted upon this frame are two sets of rollers, one set, designated by the numerals 18, 19 and 20, being arranged along the top of the frame and journaled in its side upright bars 14 and 15. The other set of rollers, designated by the numerals 21, 22 and 23, is journaled in the uprights and sills 12, 13. The members of the two sets of rollers are preferably substantially in vertical alignment. A sprocket wheel 24 is mounted on the end of one of the rollers, as shown the end roller 18 of the upper set, for the purpose of receiving power for operating the machine. In order to drive all of the rollers, those of one set, as shown the upper set, are connected together by a sprocket chain 25 engaging sprocket teeth 26 formed on

the several rollers of this set. An endless band or tape 27 runs upon all of the rollers of the two sets and is given many turns about each pair of rollers, one member of each pair being in each of the two sets.

A tightening device is provided for the tape 27, and comprises a roller 28 carried by an arm 29 adjustably fixed and projecting from one of the uprights 10. Tracing this tape from the tightening device as a starting point, it leads first over the end roller 18 and to the opposite end of the machine, turning downwardly about the roller 20, as shown most plainly in Fig. 2. Leading thence to the roller 23 and making repeated turns about these two rollers 20, 23, being wound spirally thereon. Reaching the opposite side of the machine, the tape 27 leads to the next lower roller 22 and is then wound spirally about this roller and its companion 19 of the upper set. Reaching the opposite side of the machine, the tape is now led to the next adjacent lower roller 22 and in similar manner spirally wound about this roller and the corresponding roller 19 of the upper set. Thus the tape is led from pair to pair of the rollers, the transfer from one pair to the next being made alternately at opposite sides of the machine, and the number of rollers in each set is such that the tape leaves the lowest roller at the same end at which it started from the tightening device.

Supplemental tightening devices are provided for taking up the slack in connection with each pair of rollers. All of these supplemental devices being alike, but one need be described. It consists of a pair of arms 30, 31 pivoted upon the trunnions of the lower roller as 22, and projecting upwardly, a roller 32 being journaled in the upper ends of such pair of arms and adapted to bear against the inner face of the several turns of the tape about the pair of rollers with which this particular supplemental tightening device coöperates. Retractable springs 33, 34 are attached to the frame of the machine and to the arms 30 and 31, and drawing them away from the perpendicular, forcing the roller 32 against the tape and consequently drawing its several turns taut.

The several turns of the pair of rollers are spaced apart by guiding rods 35, 36, which may be conveniently carried by the cross-bars 16, 17 of the machine. In Fig. 2

of the drawings no attempt has been made to illustrate the lower set of these guide rods, in order that confusion might be avoided and in Fig. 3 this lower set has not been fully illustrated for the same reason.

The roller 18 being turned by the application of power to the sprocket wheel 24, all of the rollers of the upper set are turned through the medium of the sprocket chain 25, the rollers of the lower set being turned by the frictional engagement of the tape itself.

The machine is used in conjunction with a film coating apparatus, not illustrated, but which will deliver the film, here represented by the dotted line 37, to the tape 27 adjacent the tightening roller 28. The end of the film may be secured to the tape in any desired manner, as by means of a pin. The machine being set in motion, the film is carried with the tape, in its many turns about the several sets of rollers and by the time it reaches the end of the machine at which it was received, its coating will have become completely dried so that it is ready for use. It will therefore be separated from the tape below the tightening roller 28 and may be wound upon a spool, not shown, or otherwise taken care of.

The size of the machine here shown and described may, of course, be varied at pleasure either by widening it or increasing the number of pairs of rollers. The distance between the upper and lower set of rollers must be kept within limits to avoid any tendency of the several turns of the tape and film to interfere.

While the preferred form of the machine, and one which has been found highly successful, has been shown and described, other forms may be employed which come within the scope of the invention.

What I claim is:

1. In a film-drying machine, in combination, a plurality of rollers and a continuous film carrying tape running on the rollers and having one of its faces only in contact therewith.

2. In a film-drying machine, in combination, a pair of rollers, and a continuous film carrying tape running on such rollers and being wound spirally about them as a pair.

3. In a film-drying machine, in combination, a pair of rollers, a continuous film

carrying tape running on such rollers and being wound spirally about them as a pair, and guides interposed between the several turns of the tape.

4. In a film-drying machine, in combination, a plurality of rollers, a film carrying tape running on the rollers and having one of its faces only in contact therewith, and means for driving the rollers.

5. In a film-drying machine, in combination, a plurality of rollers arranged in pairs, and a film carrying tape wound spirally around each pair of rollers, one of its faces being always outward.

6. In a film-drying machine, in combination, a plurality of rollers arranged in pairs, a film carrying tape wound spirally around each pair of rollers, one of its faces being always outward, and spacing rods located between the several turns of the tape.

7. In a film-drying machine, in combination, a frame, rollers mounted on the frame and being arranged in pairs, guide rods transverse to the rollers and located between the members of each pair, and a tape running on the various rollers and being wound spirally around each pair thereof and passing between the guide rods.

8. In a film-drying machine, in combination, a frame, two sets of parallel rollers journaled in the frame, a sprocket chain engaging the several members of one set of rollers, guide rods located adjacent each set of rollers and transverse thereto, and an endless film carrying tape running on the several rollers and being wound spirally around pairs thereof, the several turns of the tape being between the guide rods.

9. In a film-drying machine, in combination, a plurality of pairs of rollers, and a continuous film-carrying tape traversing all the rollers, such tape being wound spirally around each pair of rollers and having one of its faces always outward.

10. In a film-drying machine, in combination, a plurality of pairs of rollers, and a continuous film-carrying tape traversing all the rollers, such tape being wound spirally around each pair of rollers.

FREDRICK B. THOMPSON.

Witnesses:

LOUIS K. GILLSON,
CHARLES B. GILLSON.