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DRIER FOR GUMMED SHEETS.

APPLICATION FILED JUNE 9, 1911.

1,043,447.

Patented Nov. 5, 1912.

3 SHEETS—SHEET 1.

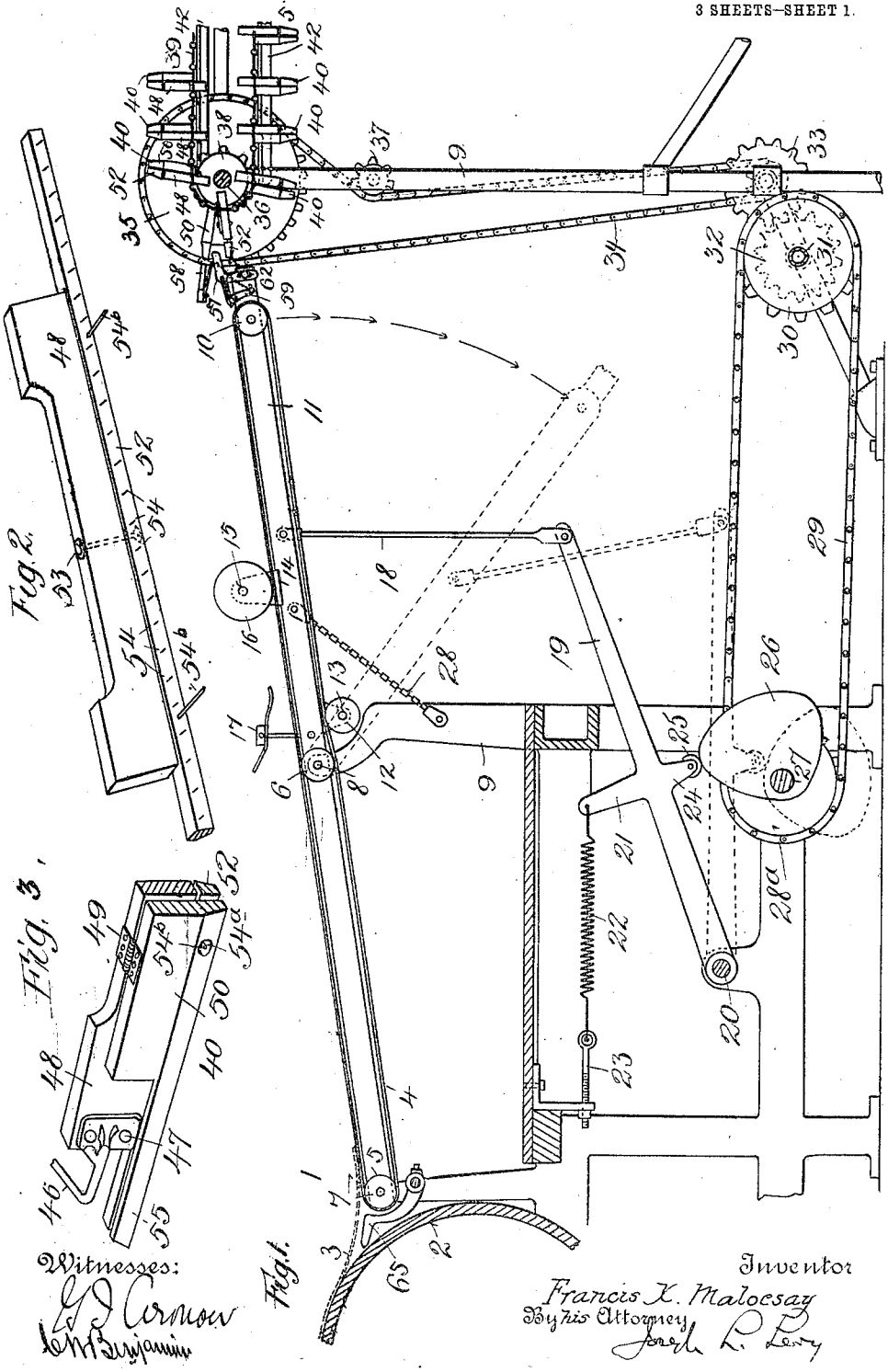

Fig. 2.

Fig. 3.

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Fig. 1.

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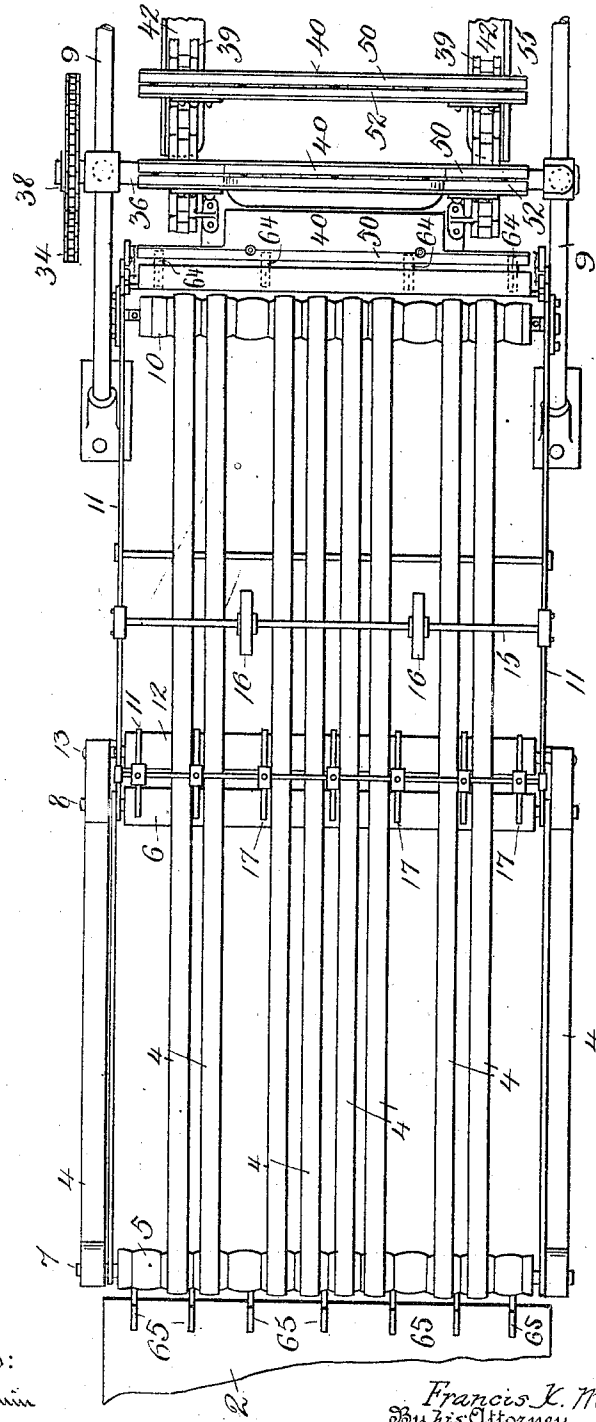

Fig. 4

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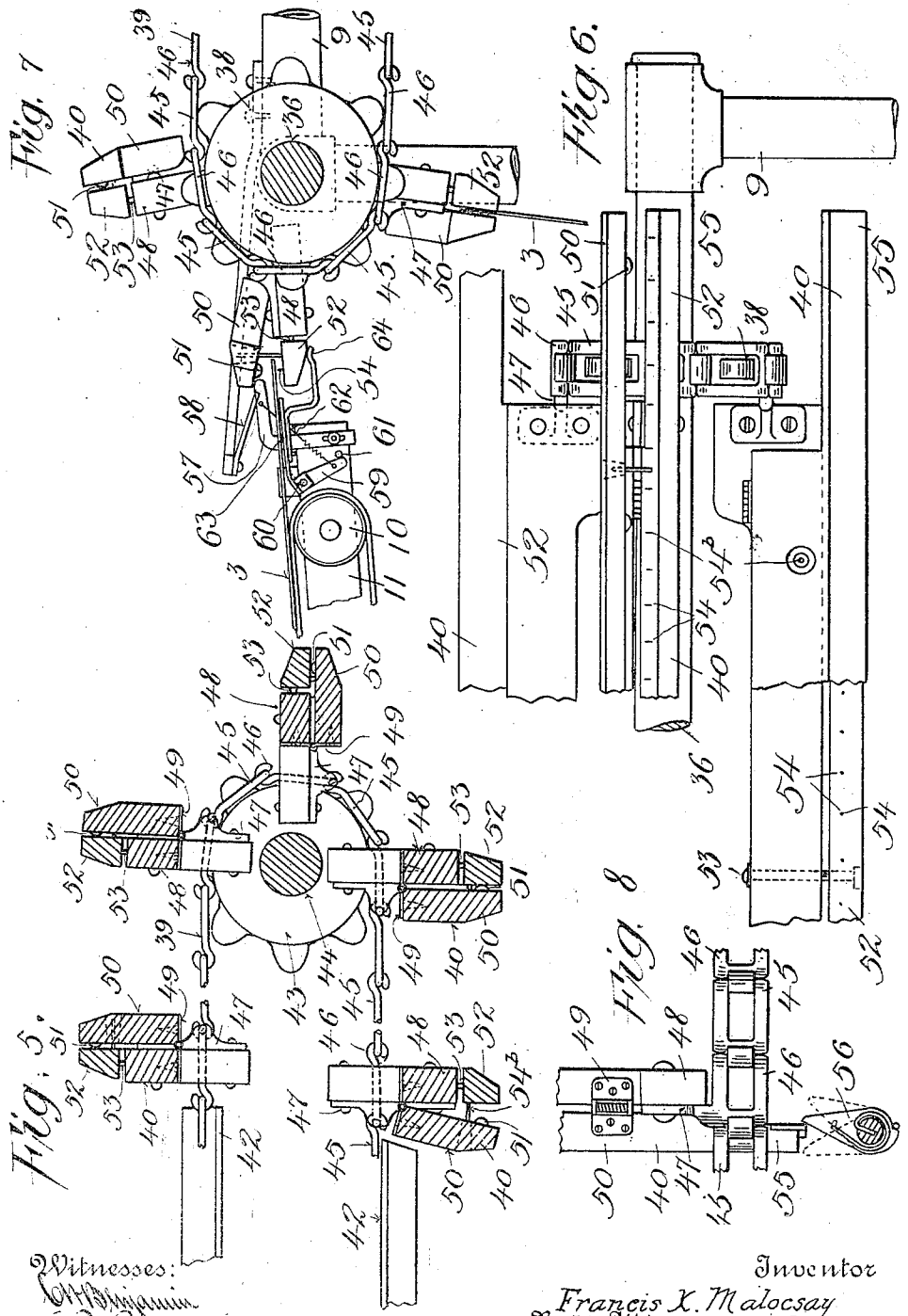

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UNITED STATES PATENT OFFICE.

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DRIER FOR GUMMED SHEETS.

1,043,447. Specification of Letters Patent. Patented Nov. 5, 1912.

Application filed June 9, 1911. Serial No. 632,188.

To all whom it may concern:

Be it known that I, FRANCIS X. MALOCSAY, a citizen of the United States, and a resident of New York, county of Westchester, and State of New York, have invented a new and useful Improvement in Driers for Gummed Sheets, of which the following is a specification.

The object of my invention is to provide a device of this class which may be attached to a gumming machine and receive paper with green gum thereon and support and hold each sheet until the same is thoroughly dried, and then drop the said sheet at a proper place and time, and to make this drying machine so that it will work in unison with a gumming machine. This object is accomplished by my invention, one embodiment of which is hereinafter set forth.

For a further description of my invention reference is to be had to the accompanying drawings, forming a part hereof, in which:

Figure 1 is a side elevation, partially in section, of a portion of a gumming machine to which my improved drier is attached. Fig. 2 is a perspective view of a portion of a clamp for holding a sheet. Fig. 3 is another perspective view of one end of a clamp. Fig. 4 is a plan view of the structure shown in Fig. 1. Fig. 5 is a sectional view showing the clamps, or grippers at the rear end of the run. Fig. 6 is an end view showing the grippers about to receive a freshly pasted sheet. Fig. 7 is a side elevation of the grippers shown in Fig. 6. Fig. 8 shows the releasing mechanism.

Throughout the various views of the drawings, similar reference characters designate similar parts.

The pasting machine 1 is provided with the usual roller 2, from which the sheets 3 pass on to belts 4 mounted on suitable rollers 5 and 6, which rollers are carried on axles 7 and 8 respectively, and these axles are mounted in the frame 9 in the conventional manner. The belts 4 do not end with the rollers 6 but pass over the same and around other rollers 10 mounted on an extension 11 pivoted on the shaft 8, and over the guide rollers 12 mounted on an axle 13 secured in suitable brackets depending from the frame 11. The frame 11 also carries pedestals 14 which support a shaft 15 on which are mounted a few idle rollers 16 which keep the pasted sheet 3 from bounding from the grippers or clamps which are described below. They are adjustably mounted so as to be the length of a sheet 3 from these grippers or clamps at the time a sheet is clamped. Suitable guides 17 mounted near the rollers 6 and on the frame 11 also perform this function. The frame 11, as above stated, is articulated or pivoted on the axle 8 and may be lowered to the position shown in dotted lines by means of a link 18 pivoted at its lower end to a cam lever 19 which is mounted on a suitable bar 20 supported by the frame 9. This lever 19 and the link 18 are duplicated on opposite sides of the machine, but as they are identical, a description of one will answer for both. The cam lever 19 has an upwardly extending arm 21 secured to a spring 22 adjustably mounted by means of an eye-bolt 23 in the frame 9 and below the arm 21 is a corresponding arm 24 in the lower end of which is mounted a cam roller 25 in the conventional manner, which roller runs on a suitable cam 26 which is fixed to the shaft 27 which is journaled in the frame 9. For the purposes of this description, shaft 27 may be considered the main shaft of the machine. It is connected by a clutch mechanism and sprocket chains, or other gearing, with the roller 2 so as to move in unison therewith. The cam roller 25 is kept on the cam 26 by gravity and cannot be thrown off this roller because a chain 28 is secured to the frame 11 at one end and to the frame 9 at the other, and limits the upward movement of the frame 11 so that it will never rise high enough to permit the cam roller 25 to leave the cam 26. The shaft 27 also carries a suitable sprocket wheel 28^a on which runs a chain 29, of the conventional form, which runs over a second sprocket wheel 30 on a shaft 31 which shaft also carries a suitable gear shown in dotted lines at 32, that meshes with a corresponding gear 33, on a shaft that carries a sprocket wheel with a chain 34 that runs in a substantially vertical plane over a sprocket wheel 35 on a shaft 36. The chain 24 is kept tight and out of the way by means of an idle wheel 37 mounted in the frame 9 in any suitable manner.

The shaft 36 carries a pair of sprocket wheels 38, each of which carries one part of an endless chain 39 which is sufficiently long to support as many clamps 40 as desired,

and these chains may be supported from time to time by suitable guides 42, or other suitable means, and at the other end of the machine is a pair of sprocket wheels 43 mounted on a suitable shaft 44 suitably journaled in the machine so that the chains 39 are endless and carry enough conveyers so that the green sheets will dry during the lower run of the chains 39, and each chain is connected, as above described, so as to run in unison with the pasting machine 1.

Each chain 39 is composed of links 45 and 46. The links 45 and the links 46 are hooked together in the conventional manner, and the links are alternately arranged and disposed, and the links 46 are opposite each other on the respective chains so that the clamps 40 extend laterally of the chains at all times and do not stretch diagonally across, as would be the case if the links 46 were not opposite. Each of these links 46 carries a lateral projection 47 to which is bolted or otherwise secured one member of the clamp 40 which, for convenience, will be designated the fixed member. The fixed member 48 is provided with a projection to which the projecting part 47 is secured, as above set forth. This fixed member is also provided with spring hinges 49 held in place by screws or other suitable means and these hinges are also secured to the pivoted member 50 of the clamp 40, as many hinges being used as desired. The hinge member 50 extends below or beyond the fixed member 48 and is provided near its lower end with suitable recesses or perforations to receive pins, described below, and also with suitable rubber or other projections 51 which press the sheet clamped against the pivoted member 52. This pivoted member 52 is pivoted by a pin or nail 53 to the center of the lower edge of the fixed member 48 and is provided with suitable nails, or similar pins 54^b, above mentioned, which enter the recesses 54^a in the hinged member 50 and act as stops to prevent the clamped sheet from getting too far into the clamp 40. Other pins 54 do not project quite so far and prevent the freshly gummed paper from getting in contact with the pivoted member 52. Under no circumstances are the green strips on the paper allowed to be perforated by the pins 54, or in direct contact with either jaw. Only the pins 54 and the rubber buttons touch the paper. The hinged member 50 is also provided with a longitudinally extending projection 55 that is engaged by a spring button 56, or similar device near the rear end of the machine, which is mounted in any suitable way on the frame 9 so as to force the hinge member 50 away from the fixed member 48 and thereby release the paper, which falls and the jaws are afterward again opened to engage a fresh sheet.

This opening operation will now be described. When a clamp 40 ends the upper run toward the front of the machine and passes over the wheels 38, it shifts to a substantially horizontal position where the hinged jaw 50 is raised to receive a sheet 3. This raising of the hinged jaw is brought about by means of a bent iron 57 secured to the frame 11 and adjustably mounted thereon, as by slot and bolt connection, or other suitable means. 58 is a guide to force a curled or distorted sheet into a clamp or gripper. The frame 11 also carries a bell crank lever 59 which is pivoted at 60 and has one arm normally held against a stop 61 by means of a suitable coiled spring 62, which has its other end mounted on the metal bar, as shown. The other arm of the lever 59 is connected to a suitable plate 63, which extends laterally and connects the levers 59, and from this plate 63 are supported a number of spring fingers 64 which serve the purpose of properly alining the pivoted bar 52 on the fixed member 48 so that the same will be ready to receive the sheet 3 and not interfere with the same.

The pivoting of the bar 52 permits a great deal of warping without in any way interfering with the action of the apparatus. This is important because wooden bars will warp in the damp atmosphere to which they are exposed when in use. The clamps 40 are closed by the spring hinges 49 after the bent iron 57 is passed by the projection 55 of the hinged jaw 50.

In view of the foregoing, the operation of my improved machine will be readily understood. The paper 3 is fed from the roller 2 over the stripper 65 and onto the belts 4 from whence it is fed over the plate 63 into the open clamp 40 which receives the paper. The clamp 40 is immediately closed on the edge of the paper which is held as above described, and then the frame 11 falls as above indicated, and the pasted sheet swings clear and assumes a vertical position, and this operation is repeated indefinitely. In about eleven minutes or some other suitable time, the sheet 3 reaches the rear end of the drier where the button 56 engages the projection 55 and retards the same enough to open the clamp 40 and release the sheet which falls on a suitable receptacle where the sheets are stacked and removed from time to time by an attendant. The spring hinges 49 close the clamp 40, that has just been opened to release the sheet, and the clamp then returns to the front of the machine on the upper run of the chains 39 when the operation is repeated. The spring 22 operates to pull up on the lever 19 to assist in the raising of the extension 11.

In the foregoing has been described a machine which can be used for pasting sheets or for any other sheets which should

be dried before being stacked. This will apply to any adhesive, paint or coloring matter or similar substances which may be placed on a sheet either entirely or in strips. It is also apparent that many modifications may be made in my improved drier without departing from its spirit or sacrificing any of its advantages.

Having thus described my invention, what I claim is:—

1. In a machine of the class described a clamp, articulated means for feeding a freshly-gummed sheet to said clamp, means for causing said clamp to receive and support one end of said sheet, a swinging frame, and means for shifting said clamp with its sheet hanging in a vertical plane so that the same may be dried while transported.

2. In a machine of the class described, a series of belts and articulated means for supporting the same, said belts being so arranged and disposed as to receive a sheet of freshly-gummed material, a swinging frame, clamps and means for supporting and means for operating the same so that said clamps will be opened and closed and shifted so that they will appear successively in an open condition when adjacent to said belts, said belts being constructed and arranged to have one end lowered adjacent to said clamps simultaneously with the shifting of the clamps whereby a sheet may be inserted in a clamp and allowed to swing free from said belts when the clamp is shifted.

3. In a machine of the class described, belts and articulated means for sustaining the same so that said belts may receive and transport sheets of freshly-gummed material, said belts being disposed so that one end of said belts may be lowered and raised, clamps and means for supporting the same so that said clamps will be both shifted and opened, the opening taking place when adjacent to said belts and means for driving said clamps in unison with the swinging of the free ends of the belts whereby all freshly gummed material may be fed to said clamps and held there in a vertical position so as to dry during transportation.

4. In a machine of the class described a series of belts, a series of rollers over and under which said belts run and a movable frame, means for shifting said frame, said frame being connected with some of said rollers which are so arranged and disposed that the belts remain in a substantially uniform tension during the shifting of the movable part of the frame.

5. In a machine of the class described, a swinging frame, a pair of parallel sprocket chains and clamps connecting the same, said clamps having integral extensions on one jaw and means on said swinging frame for engaging said extensions and opening said clamps at predetermined points whereby the said clamps may be opened to either receive or release gummed papers.

6. In a machine of the class described, a series of belts and means for supporting the same so that one end of said belts may be raised or lowered, a guide adjacent to the moving end of the frame carrying said belts, said guides having projections adapted to engage a jaw of a clamp and hold the same in proper alinement ready to receive a freshly-gummed sheet.

7. In a device of the class described, a frame, shafts mounted in said frame, sprocket wheels mounted on said shafts, parallel chains mounted on said sprocket wheels, a swing frame, clamps carried by said chains and connecting the same, an integral extension on one jaw of each of said clamps, means constructed to permit of the openings of the jaws and means on said swing frame for opening said clamps and causing the same to drop any sheets held thereby.

8. In a machine of the class described, clamps composed of two jaws, pivoted together, one of said jaws having a member 52 pivoted thereon so that this pivoted member 52 will coöperate with the other jaw to support a freshly-gummed sheet although the jaws may have become warped during use.

9. In a clamp of the class described, two jaws hinged together with a spring hinge, pins projecting from one jaw through another and other pins projecting through one jaw adjacent to the other whereby a freshly gummed strip is held out of contact with the jaws wherever the freshly pasted surfaces appear.

10. In a clamp of the class described, two jaws hinged together and pins on one and rubber buttons on the other so that a sheet of given pasted paper held by said clamp will not come in direct contact with either jaw.

Signed at the city, county and State of New York, this 7th day of June, 1911.

FRANCIS X. MALOCSAY.

Witnesses:
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