No. 768,734. PATENTED AUG. 30, 1904.

B. E. CLARK.

MACHINE FOR MAKING STICKY FLY PAPER.

APPLICATION FILED DEC. 12, 1902.

NO MODEL.

Fig. 2.

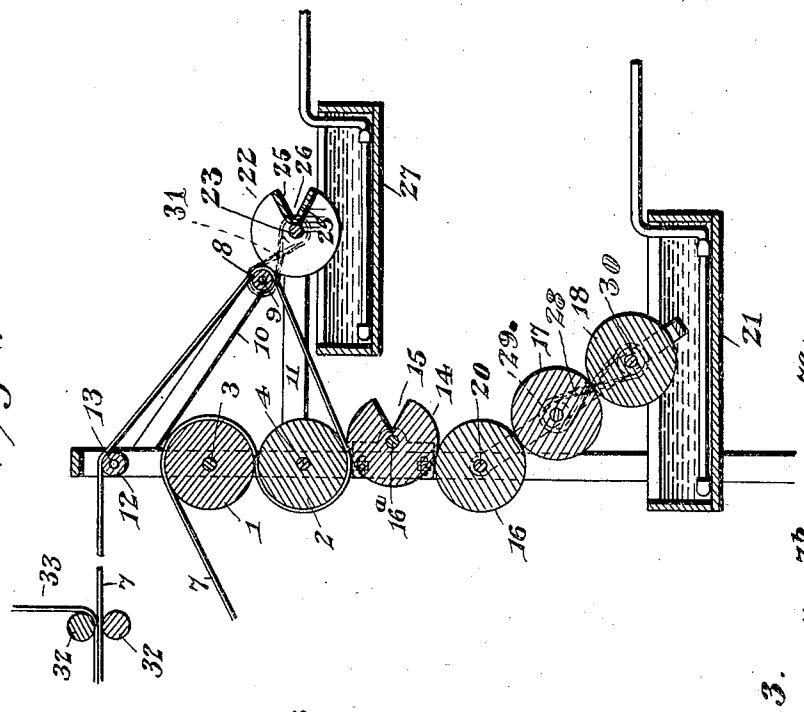


Fig. 3.

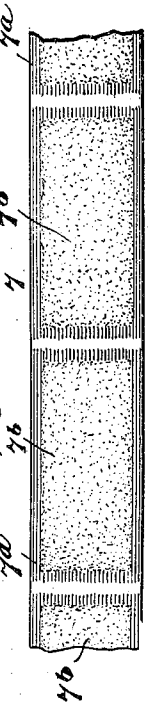
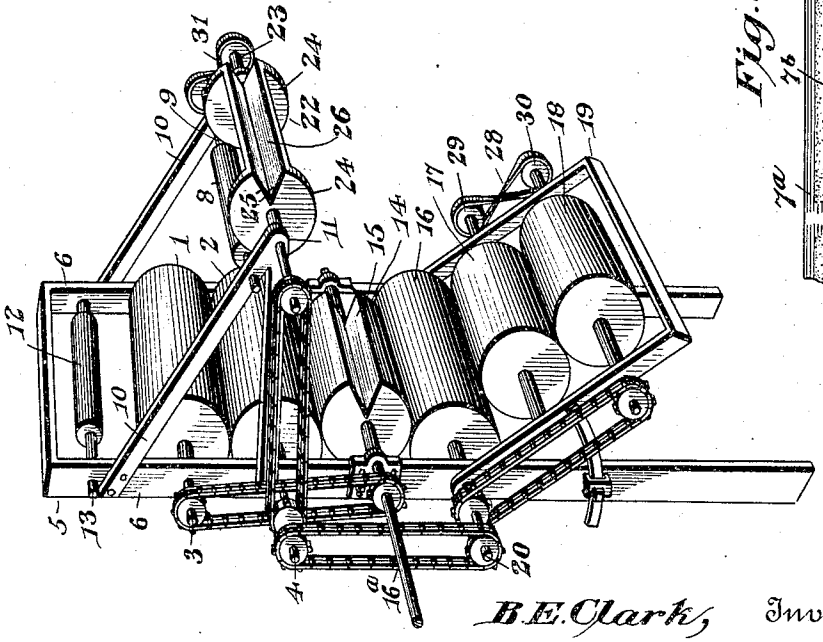


Fig. 1.



Witnesses
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UNITED STATES PATENT OFFICE.

BURTON EARL CLARK, OF WARREN, OHIO.

MACHINE FOR MAKING STICKY FLY-PAPER.

SPECIFICATION forming part of Letters Patent No. 768,734, dated August 30, 1904.

Application filed December 12, 1902. Serial No. 134,957. (No model.)

To all whom it may concern:

Be it known that I, BURTON EARL CLARK, a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented a new and useful Machine for Making Sticky Fly-Paper, of which the following is a specification.

The invention relates to improvements in machines for making fly-paper.

The object of the present invention is to improve the construction of machines for making sticky fly-paper and to provide a simple and comparatively inexpensive one of great strength and durability adapted to enable sticky fly-paper to be quickly manufactured and delivered in sheets having their adhesive faces fitted against each other and arranged in pairs, whereby the sticky compound will not interfere with the handling of the fly-paper in packing and shipping and will not be exposed until the fly-paper is put in use.

A further object of the invention is to provide a machine of this character adapted to apply the sticky or adhesive compound evenly to desired portions of the surface of a continuous strip of paper and at regular intervals to leave intervening or intermediate uncoated portions of the paper.

The invention also has for its object to apply to the paper as it passes through the machine a border or marginal area of wax or other suitable material surrounding the areas of adhesive material to facilitate the separation of the sheets or members of each pair in preparing the same for use and also to provide a seal for preventing the adhesive material from drying out through evaporation.

Another object of the invention is to enable the rolls for conveying the adhesive material from the tank or receptacle to be readily adjusted to enable them to extend into the material the desired depth.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereto appended, it being understood that changes in the form, proportion, and minor details of construction within the scope of the claims may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a machine for making fly-paper constructed in accordance with this invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detail view of a portion of a strip of paper illustrating the arrangement of the adhesive material.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 and 2 designate a pair of horizontal guide-rolls mounted on suitable shafts 3 and 4, which are journaled in bearings of a main frame 5. The main frame 5, which may be constructed in any desired manner, is provided with upright sides or standards 6, having bearings for the reception of the shafts 3 and 4 of the guide-rolls 1 and 2. These shafts 3 and 4 may be continuous and extend entirely through the rolls 1 and 2, or separate shaft sections or journals may be provided for the ends of the rolls. The strip or ribbon 7 of paper passes into the machine over the upper guide-roll 1, and it extends beneath the same and around the outer side of the lower guide-roll 2, and it then extends rearward to a small guide-roll 8. The guide-roll 8, which is located in rear of the rolls 1 and 2, is mounted on a horizontal shaft 9, which is journaled in suitable bearings of inclined bars or braces 10. The inclined bars or braces extend downward and rearward from the upper portions of the sides or standards 6 to the rear ends of a pair of horizontal arms 11, which are connected at their front ends to the said sides or standards 6. The paper after partially passing around the rear guide-roll 8 extends forward and upward to a top roll 12. The top roll 12 is mounted on a suitable shaft 13, which is journaled in suitable bearings of the sides or standards 6.

The sticky or adhesive compound is applied to the paper by means of a mutilated roll 14, provided with an approximately sector-shaped recess 15, forming a peripheral opening, which is adapted to leave uncoated portions of the paper at regular intervals, and the roll 14 is

of less length than the rolls 1 and 2, which are of a length equal to the width of the paper, whereby narrow marginal uncoated portions will be left at each side after the paper has passed over the mutilated roll 14. The mutilated or sizing roll 14 is mounted on a shaft 16^a, which is journaled in suitable bearings that are also adjustable to produce the necessary frictional engagement with the paper, whereby the adhesive material carried by the roll 14 will be positively applied to the paper. The mutilated or sizing roll 14 also frictionally engages a lower feed-roll 16, which supplies the roll 14 with the sticky or adhesive compound, the latter being fed to the roll 16 by means of a pair of rolls 17 and 18, mounted in a hinged adjustable frame 19, which is adapted to be raised and lowered to enable the rolls 17 and 18 to extend into the adhesive compound to the desired depth. The hinged frame 19, which is approximately rectangular, is composed of parallel sides and an outer transverse connecting portion, the inner ends of the sides being pivoted to the uprights or standards 6 at the shaft 20 upon which the roll 16 is mounted, whereby the rolls 17 and 18 are adapted to swing concentric with the roll 16, so that they will preserve the same relation to one another irrespective of the position of the hinged frame 19. The adhesive or sticky compound, which may be of any preferred composition, is contained within a suitable tank or receptacle 21, and any suitable means may be provided for securing the hinged frame at the desired adjustment, and the said hinged frame is adapted to be raised and lowered to arrange it properly with relation to the contents of the tank or receptacle 21. The said rolls 17 and 18 may be gradually lowered as the contents of the tank or receptacle are consumed, and the hinged frame may be raised when the adhesive material is renewed by refilling the tank or receptacle.

In order to enable the pairs of sheets hereinafter described to be readily separated without the fingers of the person using the paper coming in contact with the adhesive material, the marginal and intervening spaces left uncoated by the mutilated sizing-roll are supplied with a coating of wax or other suitable material by a skeleton roll of approximately the same area or diameter as the mutilated sizing-roll and arranged to engage the paper contiguous to the rear guide-roll 8 after the said paper has left the roll 14.

The skeleton roll 22 consists of two approximately circular ends provided with inwardly-tapered or sector-shaped openings or recesses 25 and connected by transverse bars which have approximately parallel outer engaging edges. The transverse connecting-bars extend inward and form a tapering groove or space similar to the open space of the mutilated roll 14. In practice the rotation of the skeleton roll will be properly timed, so that it will operate properly in conjunction with the mutilated roll and engage the areas of the paper uncoated with the adhesive compound. The connecting-bars 26 operate in the spaces between the coated areas, and the space between their engaging edges is approximately of the same area as the space or opening formed by the sector-shaped recess 15 of the mutilated sizing-roll and the circular ends or frames 24, and the connecting bars or portions are adapted to apply a border 7^a, of wax or other suitablematerial, to the paper around the adhesive or sticky areas 7^b just before the paper leaves the machine. The skeleton frame extends into a tank or receptacle 27, which contains the wax or other material, and the wax and the adhesive material are maintained in a liquid state by means of suitable steam-coils arranged within the tanks or receptacles 21 and 27.

Instead of providing a skeleton coating device of the construction just described any desired form of roll having complete or interrupted circular end portions and parallel connecting portions for applying the wax or other material to form a border around the areas or surfaces coated with adhesive material may be employed.

The mutilated roll 14, which applies the adhesive or sticky material to the paper, is designed to be driven by an electric or other motor, and motion is communicated from the shaft 16^a to the other rolls by means of sprocket-gearing, as clearly shown in Fig. 1. The rolls 17 18, which are narrower than the roll 16 and which feed or convey the adhesive material to the same, are connected by a belt 28, arranged on suitable pulleys 29 and 30 and preferably crossed, as shown. The rolls 1, 2, and 16 are connected directly with the shaft 16^a of the mutilated sizing-roll 14 by sprocket-gearing, and the skeleton roll is connected by a sprocket-gearing with the shaft of the roll 2. The rear feed-roll is connected by a belt 31 with the rotary skeleton roll, the belt being preferably crossed and arranged similarly to that heretofore described.

The paper after leaving the machine passes between a pair of rolls 32, which are adapted to press a second uncoated strip 33 of paper against the coated face of the strip 7 and feed the two strips to a suitable cutter for severing the strips at the intervening spaces between the areas of adhesive material. This cuts the strips into sheets, which are arranged in pairs and which have inner coated faces, and the latter are thereby protected and prevented from coming in contact with the person handling the sheets until the sheets are pulled apart to prepare the fly-paper for use.

The adjustment of the mutilated roll 14 and the particular arrangement of the feeding-rolls 16, 17, and 18 enable the adhesive material to be regularly and uniformly distributed

over the paper, and the thickness of the coating may be regulated and controlled by the said adjustment of the mutilated roll. This will enable the machine to be adjusted to suit any changes in the temperature of the workroom, as such changes in temperature affect the consistency of the adhesive material. Also by means of the said adjustment of the mutilated rolls and the arrangement of the feeding-rolls the machine is enabled to turn out completed fly-paper of two thicknesses with great rapidity and is not liable to get out of order and will run continuously without interruption for a long time. The strip or ribbon of paper is sized before passing through the machine to prevent it from absorbing the adhesive material or permitting the same to soak through it.

It will be seen that the paper may be rapidly passed through the machine, that the adhesive material is uniformly applied to the paper in predetermined areas and at regular intervals to leave uncoated marginal intervening spaces or portions, and that a border or margin of wax is applied to the paper around the adhesive areas to facilitate a separation of the sheets in preparing the fly-paper for use and to seal the adhesive material and prevent the same from drying out.

What I claim is—

1. In a machine of the class described, the combination of means for applying adhesive material to a strip or ribbon at intervals, means for applying a non-adhesive marginal border or coating around the adhesive areas, and means for pressing a second uncoated strip or ribbon against the said strip or ribbon, substantially as described.

2. In a machine of the class described, the combination with means for applying adhesive material to a strip or ribbon at intervals, of means for applying a marginal coating or border of wax around the adhesive areas, and means for pressing a second uncoated strip or ribbon against the said strip or ribbon to provide two sticky sheets and a marginal intervening seal, substantially as described.

3. In a machine of the class described, the combination of a series of guide-rolls arranged to receive a strip or ribbon, a mutilated roll for applying adhesive material to the strip or ribbon, a series of rolls for delivering adhesive material to the mutilated rolls, and a rotary device for applying a marginal coating or border around the adhesive areas, substantially as described.

4. In a machine of the class described, the combination of a main frame, a series of guide-rolls, arranged to receive a strip or ribbon, a mutilated roll having a peripheral opening and arranged to engage the strip or ribbon, and an adjustable frame connected with the main frame and provided with rolls for delivering adhesive material to the mutilated roll, substantially as described.

5. In a machine of the class described, the combination of a main frame, a series of guide-rolls arranged to receive a strip or ribbon, a mutilated roll for applying adhesive material at intervals to the strip or ribbon, an adjustable frame hinged to the main frame, and rolls mounted in the adjustable frame for delivering adhesive material to the mutilated roll and adapted to be raised and lowered to arrange them at the desired depth within a tank or receptacle, substantially as described.

6. In a machine of the class described, the combination of a main frame provided with a rearwardly-extending portion, front guide-rolls mounted on the main frame at the upper portion thereof, and rear guide-rolls, an adjustable mutilated roll arranged adjacent to one of the front guide-rolls, a hinged frame connected with the main frame, delivering-rolls carried by the hinged frame, a roll interposed between and engaging one of the delivering-rolls and the mutilated roll, and a rotary device mounted on the rearwardly-extending portion of the main frame for applying a marginal coating or border to the strip or ribbon, substantially as described.

7. In a machine of the class described, the combination with means for applying adhesive material to a strip or ribbon, of an adjustable frame, and feed-rolls carried by the frame and movable with the same, whereby the feed-rolls are adapted to be adjusted to the desired depth and to be lowered as the liquid is consumed, substantially as described.

8. In a machine of the class described, the combination with means for applying adhesive material to a strip or ribbon, of a hinged frame arranged to swing upward and downward, and feed-rolls carried by the hinged frame, substantially as described.

9. In a machine of the class described, the combination of means for supplying adhesive material to a strip or ribbon, feeding mechanism for conveying the adhesive material to the said means, and means for adjusting the feeding mechanism, whereby the same is arranged at the desired depth and is lowered as the liquid is consumed, substantially as described.

10. In a machine of the class described, the combination of means for applying adhesive material to a strip or ribbon, means for adjusting the said means to and from the strip or ribbon to vary the thickness of the coating, feeding mechanism, and means for raising and lowering the feeding mechanism to arrange the same at the desired depth and to adjust it as the liquid is consumed, substantially as described.

11. In a machine of the class described, the combination of means for applying adhesive material to a strip or ribbon at intervals, means for directly applying a non-adhesive border or coating to the said strip around the adhesive areas and at intervals to leave inter-

vening uncoated areas, and means for pressing a second uncoated strip or ribbon against the coated strip or ribbon to provide two coated strips or ribbons, said strips or ribbons being adapted to be severed at the uncoated areas without affecting the sealing of the sheets thus formed, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BURTON EARL CLARK.

Witnesses:
E. O. DILLEY,
A. G. MINER.