No. 722,880.

PATENTED MAR. 17, 1903.

C. OWENS.

PAMPHLET COVERER.

APPLICATION FILED MAR. 29, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

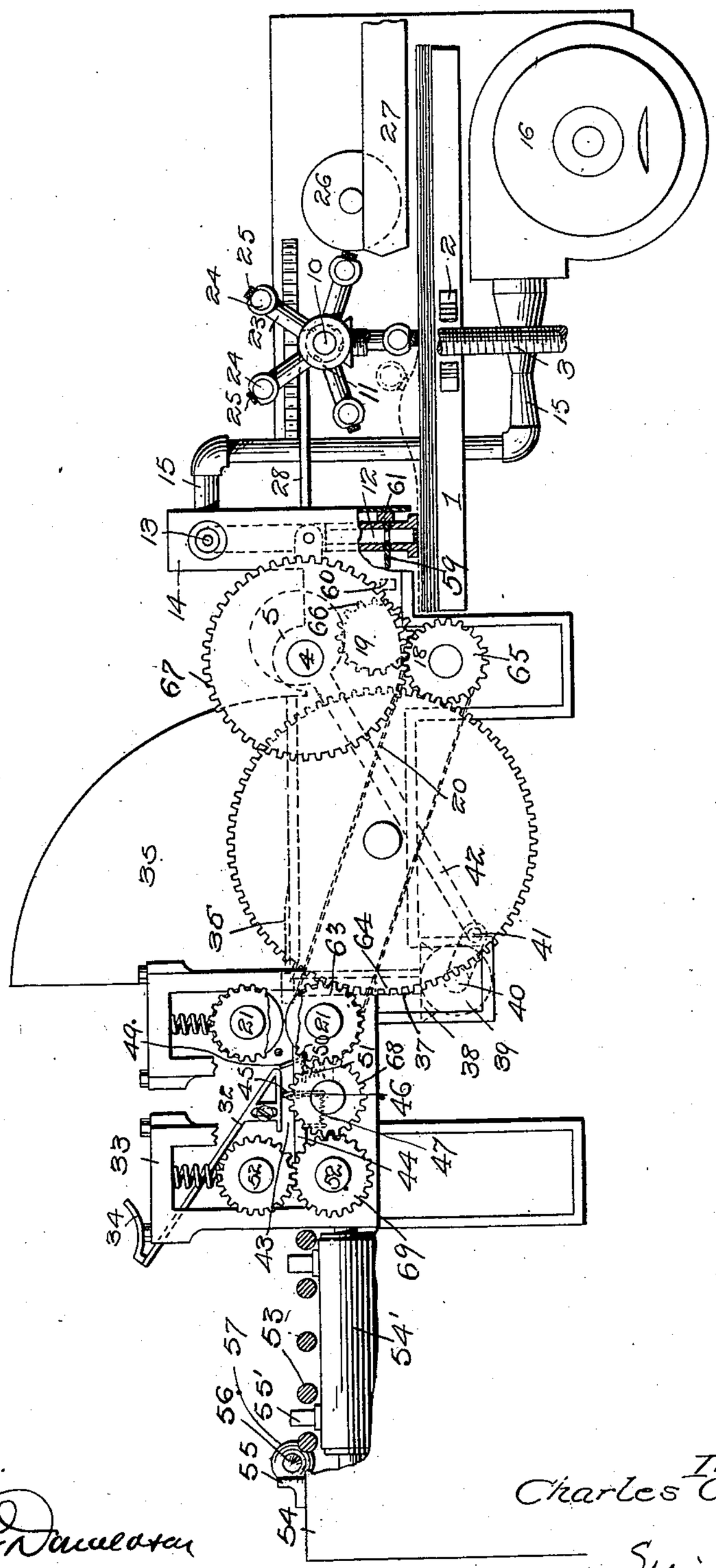

Fig. 1.

ATTEST:

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NO MODEL. 2 SHEETS—SHEET 2.

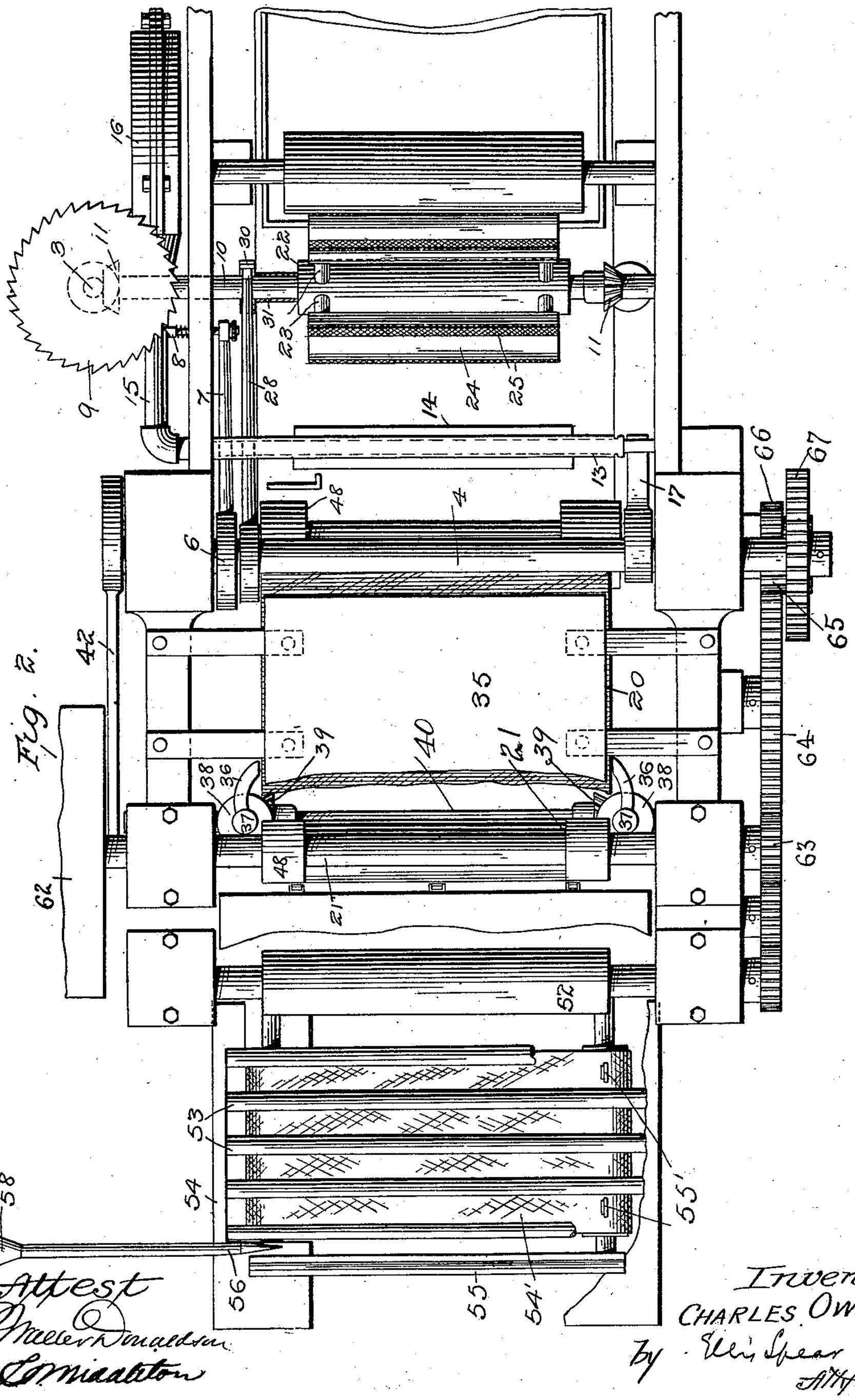

Fig. 2.

Attest
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UNITED STATES PATENT OFFICE.

CHARLES OWENS, OF CHATTANOOGA, TENNESSEE, ASSIGNOR OF ONE-HALF TO DWIGHT PRESTON MONTAGUE, OF CHATTANOOGA, TENNESSEE.

PAMPHLET-COVERER.

SPECIFICATION forming part of Letters Patent No. 722,880, dated March 17, 1903.

Application filed March 29, 1902. Serial No. 100,602. (No model.)

To all whom it may concern:

Be it known that I, CHARLES OWENS, a citizen of the United States, residing at Chattanooga, Hamilton county, Tennessee, have invented certain new and useful Improvements in Pamphlet-Coverers, of which the following is a specification.

My invention relates to machines for applying covers to magazines, almanacs, and the like; and it consists in the features and combinations and arrangement of parts hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of the invention. Fig. 2 is a plan view of the same.

In the drawings, 1 indicates a table upon which rest the covers which are to be applied to the magazines or almanacs. This table is movable vertically by means of vertical screw-shafts 3, operating through nuts 2 on the edges of the table. The movement of the table is step by step and is adapted to keep the upper surface of the pile of covers in the same central horizontal plane, so that the upper sheet will always bear the same relation to the feeding mechanism. This step-by-step movement of the table is effected from an eccentric-shaft 4, supported in the framework at 5 and having an eccentric 6 operating a rod 7, carrying a spring-pawl 8 to engage a ratchet-wheel 9 on one of the screw-shafts. The screw-shafts are connected together by a transverse shaft 10, extending above the table and journaled in suitable bearings in the framework, said shaft having beveled gears 11 thereon meshing with similar gears on the screw-shafts.

The mechanism for feeding the covers comprises a suction or pneumatic tube 12, pivoted at or near its upper end at 13 to a housing or standard 14 and connected by a pipe 15 with a fan-casing 16, containing a suitable form of fan for exhausting the air from the pneumatic feeder. The lower end of this pneumatic feeder is normally slightly above the upper surface of the pile of covers on the table 1. It has oscillating movement imparted to it by means of an eccentric and strap 17. The suction through this tube will cause the upper cover-sheet to be raised from the pile, and then the tube swinging toward the left will thrust the end of the cover-sheet between feed-rollers 18 19, which are constantly rotating, and by these the sheet will be fed onto a traveling belt 20, which directs it to feed-rollers 21, the action of which will be hereinafter described.

On the shaft 10 I arrange a paste-applying device, which also serves the purpose of buckling up the top one of the covers and assists in properly feeding the covers one at a time to the transmitting-rolls 18 19. This paste-applying device is intended to apply a line of paste transversely and centrally across the sheets which are to form the covers, so that when the magazine is brought with its back edge into contact with this line of paste the cover and the magazine will be united. This pasting device comprises a series of arms 23, radiating from a drum 22, the said arms carrying transverse bars 24, having thereon paste-applying pads 25. This paste-applying device is given a step-by-step movement, and at each step one of the paste-applying devices 25 is made to contact with a paste carrier or roller 26, which rotates in a trough 27, and at the next step the pad, which has just received a supply of paste, will contact with the uppermost cover of the pile and apply thereto a streak of paste, said streak extending transversely of the cover-sheet and being approximately of the same width as the thickness of the magazine to which it is to be applied. At the next step movement of the paste-applying device the topmost cover of the pile will be buckled up, as shown in dotted lines in Fig. 1, so that a proper separation will take place between this topmost sheet or cover and the others of the pile by reason of the admission of air to the space between said topmost sheet and the balance of the pile. By this means accuracy of feed is insured, as the action described will prevent the feeding of two sheets at a time. The step-by-step movement of the pasting and sheet-buckling device is given by means of an eccentric-rod 28, operated from an eccentric on the shaft 4, before described, said rod having a pawl 29 to engage a ratchet-wheel 30 on a sleeve 31, surrounding the shaft 10 and connected with the drum 22. The cover or sheet hav-

ing been pasted and fed between the rollers 21, before mentioned, is moved by said roller forwardly with its forward edge directed up the inclined plane 32, supported by the framework 33 in any suitable manner and having at its upper end a stop or abutment 34, against which the edge of the cover-sheet may strike. The parts are so proportioned in relation to the length of the cover that when the forward edge of the cover strikes the stop or abutment 34 the central paste-covered portion of the sheet or cover lies substantially between the feed-rollers 21 and directly in the path along which the magazine is fed.

The magazines are piled in a hopper 35 adjacent to the feed-rollers 21, and they are fed one by one by means of oscillating fingers 36, one arranged at each forward corner of the hopper and adapted to engage the lowermost magazine of the pile and move the same into the bite of the rollers 21 and into contact with the cover-sheet at the point where the streak of paste has been applied to said sheet. These feed-arms are carried by upright shafts 37, suitably journaled in the frame, having at their lower ends beveled gears 38, meshing with similar gears 39 on a cross-shaft 40, to which an oscillating movement is imparted by an arm 41, attached thereto, operated by an eccentric-rod 42 from a suitable eccentric on the shaft 4, before described. These feed-arms 36 simply introduce the magazine to the bite of the rollers 21. It will be of course understood that from the moment the magazine begins to pass between the rollers 21 and contacts with the cover there will be no further feeding action of the rollers on the cover itself tending to force it up the incline, and the portion of the cover lying on the incline 34 will remain at rest, while the other portion in the bite of the rollers will feed forward with the magazine. The moment the magazine contacts with the inclined cover-sheet its tendency is to bend it intermediate of its length rather than to force it up the incline 34, this being due to the fact that the movement of the magazine is across the incline plane of the cover-sheet. The course of the magazine is through the passage 43 over a suitable table 44. This course, as will be seen from Fig. 1, is at an angle to the inclined position of the cover-sheet, and as the magazine moves horizontally along the pathway 43 the cover-sheet will be carried along with the magazine, and it will be folded upon the same to form the front and back flaps of the cover, and its paste-covered central portion will be pressed upon the back edge of the magazine to adhere thereto. For this purpose an abutment 45 is arranged to extend across the pathway 43 and at right angles to the said pathway. The cover as it enters the pathway 43 and is bent over the edges of the magazine will engage with the face of this abutment and will be pressed squarely against the back edge of the magazine to afford a firm and even contact of the cover throughout said edge. As the magazine moves onward this abutment will yield, for which purpose it is pivotally supported at 46 and is held upright by a spring 47.

Returning to the action of the feed-rolls, it will be seen from Fig. 2 that the roll 18 and also the uppermost roll 21 are formed with only their end portions of a sufficient diameter, as at 48, to afford feeding contact with the cover-sheets. In other words, the central portions of these rollers are cut away about their shafts. By this construction the rollers will feed the sheets without contact with the paste-covered portions thereof, as it will be noticed from Fig. 2 that the paste-applying pads are shorter in length than the length of the feed-rollers and apply the paste to those portions of the cover only which will pass through the reduced or cut-away portions of the feed-rollers.

At 49 I show an automatic gate which is pivoted at 50 and is held normally in a position indicated in Fig. 1 by a spring 51. This gate serves to direct the front edge of the cover-paper as it emerges from the rollers 21 onto the inclined plate 32 and to prevent this front edge of the paper from being caught and passing into the horizontal pathway 43. When the magazine is fed along the pathway 43, together with the cover-sheet applied thereto, this gateway will yield and offer no obstruction. After passing through the way 43 the magazine, with its applied cover, is discharged, by means of rollers 52, onto a series of parallel bars 53, forming a grating supported by a frame 54. In the case of almanacs, which after receiving their covers are to be stitched, I provide means whereby the said almanacs may be opened and placed one upon the other, so that they may be conveniently fed to the stitching-machine. For this purpose I provide an endless belt 54′, running transversely to the direction in which the almanacs are discharged. The almanacs when discharged strike a stop or abutment 55, and they lie upon the grating 53. The belt 54′ has pushers or arms 55′ thereon to extend up between the bars of the grating, and they engage the bottom edges of the magazine and push the same longitudinally along the grating, so that a pointed bar 56 will enter between the leaves of the almanac close to the back thereof. The continuous movement of the pushing-arms will free the almanac from the support afforded by the grating, and the said almanac will then turn by gravity, with its back edge uppermost, and will be then supported by the pointed bar. When the next almanac is thrust upon the pointed bar, the one just placed thereon will be moved forward along the said bar and over an enlargement 57 of said bar having inclined surfaces 58 for gradually opening the almanac. In this way the almanacs may be properly opened to be placed one on the top of the other in order that they may be readily fed to the stitching-machine.

The different parts of the machine may be driven in any suitable way.

The suction of the pneumatic feed-tube is intermittent, and for this purpose I provide an automatically-operating valve at 59, consisting of a slide movable through the pneumatic feed-tube and having an opening to be moved into and out of line with the passage through the feeding-tube. This slide when the feeding-tube swings forwardly strikes an abutment or stop 60, supported on the frame, and is thereby thrust backwardly, thus bringing the imperforate part of the slide in line with passage through the feeder to cut off the suction. This cutting off takes place when the cover-sheet enters between the feed-rollers 18 19, and thus the sheet is released at the proper moment. As the feed-tube swings back over the pile of sheets and gets in position to take the next top sheet the slide-valve strikes another abutment 61, and this shifts the valve into position with its opening in line with the suction-passage, and the suction at once lifts the uppermost sheet to be attached thereto for the feeding operation, and as soon as the sheet has been taken by the feeder the paster operates to buckle up the sheet to separate it from the rest of the pile. The paster-pad being moist adheres sufficiently to the paper to insure its proper buckling and separation.

The machine is driven from a belt-wheel 62 on the shaft of the lower roller 21, which has a gear 63 meshing with a large gear 64, journaled on a stud on the frame. This large gear meshes with a gear 65 on the shaft of the lower feed-roller 18, and this is sufficiently broad to mesh with a gear 66 on the roller 19 and also a large gear-wheel 67 on the eccentric-carrying shaft 4. The rolls 52 are driven through gearing 68 69 from the gear 63. The belt 54 is driven in any suitable manner.

By reason of employing an oscillating feed-arm the said arm retracts after it has fed the magazine to the bite of the rolls, and in this retracting movement it holds up the pile of the magazines, holding the same separated from the magazine being fed and preventing more than one magazine being fed at a time.

I claim as my invention—

1. In combination in a machine for covering magazines and the like, means for holding the covers, and feeding and paste-applying means, said paste-applying means serving to buckle up the sheets to separate them, substantially as described.

2. In combination in a machine for covering magazines and the like, means for holding the covers, feeding means and a rotary device carrying a series of paste-applying pads to contact with the sheets in succession and buckle the same up at the same time the paste is applied, substantially as described.

3. In combination in a machine for covering magazines, a rotary device carrying a plurality of separate paste-applying portions extending parallel to the axis of rotation, means for holding the covers to receive the paste, means for feeding each cover after receiving the paste and means for applying the covers to the magazine, substantially as described.

4. In combination, a machine for covering magazines, a rotary paste-applying device having a series of separate paste-applying portions to contact with the covers in succession, means for supporting the covers to receive the paste and feeding means, the said paste-applying device rotating in the direction in which the covers are to be fed and the said paste-applying portions extending parallel to the axis of rotation, substantially as described.

5. In combination, means for applying paste to a portion of each cover, a pair of feed-rolls, means for feeding the cover between said rolls with the paste-charged portion substantially in the path of the magazine when fed between said rolls, means for feeding the magazine to said rolls after the cover has been fed thereto whereby its back edge will contact with the paste-charged portion and means for folding the cover onto the magazine as it leaves said rolls, the feeding means for the covers and the feeding means for the magazines operating in planes crossing each other substantially at the bite of the rolls substantially as described.

6. In combination, means for applying paste to a portion of each cover-sheet, a pair of feed-rolls, means for feeding the cover-sheets between said rolls and means for feeding a magazine between the rolls while the cover-sheet lies therein with a portion on one side of the rolls and another portion on the other side of the rolls, substantially as described.

7. In combination, a pair of feed-rolls, an inclined plate in rear of said rolls to receive the projecting portion of a sheet of material lying between said rolls and means for feeding magazines into the said rolls and onto the said sheet lying between them, and a substantially horizontal pathway for the magazine extending at an angle to the supporting-plate and located in the plane of the passage between the rolls whereby the passage of said magazine through the said pathway will cause the sheet to be folded onto the magazine, substantially as described.

8. In combination, a pair of rolls, means for applying paste to a portion of each cover-sheet, means for feeding said sheet between a pair of rolls so that a portion will lie on one side of the said feed-rolls and another portion on the other side with the paste-charged portion substantially in line with the bite of said rolls, means for feeding the magazine to the said rolls while the cover lies in the bite thereof so that the back edge of each magazine will engage the paste-charged portion of its cover, a guideway for the cover and a pathway for the magazine, said ways being in rear

of the rolls and diverging from each other, substantially as described.

9. In combination, a pair of feed-rolls, one of which is cut away, means for applying paste to a magazine or like cover, means for feeding said paste-charged cover to the feed-rolls and means for feeding a magazine to said feed-rolls to engage the cover, the said cut-away portion of the one roll preventing contact of the paste-charged portion of the cover with the said roll, substantially as described.

10. In combination, a pair of feed-rolls, means for feeding the cover-sheet thereto, means for feeding the magazines thereto, a guideway for the cover-sheet and a pathway for the magazines, said ways being adjacent to the feed-rolls and at an angle to each other, whereby the cover-sheet projected by the feed-rolls will lie across the magazine-pathway and an automatic gate for directing the cover-sheet to its guideway and preventing its front edge from entering the magazine-pathway, said gate yielding automatically to the passage of the magazine with its cover substantially as described.

11. In combination, means for applying paste to a cover-sheet for magazines and the like, means for assembling the magazines and the covers, and for folding the covers onto the magazines, and means for pressing the cover onto the back edge of the magazine, said means comprising an abutment extending across the pathway for the magazine and pivotally supported and a spring for pressing the abutment, said spring allowing the abutment to yield automatically by the pressure from the magazine, substantially as described.

12. In combination in a machine for covering magazines, means for applying and folding the cover onto the magazine and means for opening the magazine, substantially as described.

13. In combination in a machine for covering magazines, means for applying and folding the cover onto the magazine and means for opening the magazine, said opening means consisting of a bar and means for threading the magazine onto the same, substantially as described.

14. In combination with means for applying covers to magazines, means for opening the covered magazine consisting of a bar and a carrier-belt for moving the magazine along the said bar, substantially as described.

15. In combination with means for applying covers to magazines, means for opening said covered magazines consisting of a bar enlarged at one end and having its other end adapted to enter between the leaves of the magazine or almanac and means for thrusting the almanac onto the said bar, substantially as described.

16. In combination, a table, vertically-arranged screws engaging nuts on the table for raising the same, a cross-shaft above the table geared to said screw-shafts, means for operating the screw-shafts and a rotary pasting device supported on the cross-shaft with means for operating the same, substantially as described.

17. In combination, a pair of feed-rolls and means for feeding magazines thereto comprising a pair of oscillating arms arranged substantially in the plane of the bite of the rolls and adapted to enter between the leaves of the magazine at its opposite edges to push against the back and move said magazines into the bite of the rolls and means for oscillating the arms toward and from the bite of the rolls, and means for directing sheet material to the feed-rolls to be folded onto the magazine, substantially as described.

18. In combination with rolls, through which the magazines or the like are passed, means for feeding the magazines thereto, means for applying paste to a sheet leaving its side margins free from paste and means for feeding said sheet by its margins to the rolls to be attached to the magazine or other article, substantially as described.

19. In combination with rolls through which the magazine or like article passes, means for feeding the magazines thereto, means for applying paste to a sheet leaving its side margins free from paste, and means for feeding said sheet to the rolls to be attached to the magazine, said feeding means comprising a roll having end portions to contact with the margins of the sheet and a cut-away portion at its center, substantially as described.

20. In combination, a pair of feed-rolls and means for feeding magazines thereto, comprising a pair of oscillating blades adapted to enter between the leaves of the magazine at its opposite edges to push against the back and move said magazine into the bite of the rolls, said blades being pivotally supported adjacent the ends of the rolls and substantially in the plane of the bite of the same, and means for oscillating the said blades whereby the blades are retracted from between the leaves of the magazine to their original position as soon as the magazine is in the bite of the rolls, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES OWENS.

Witnesses:
HENRY E. COOPER,
C. S. MIDDLETON.