June 9, 1931. E. R. STEALY 1,809,000

PAPER FOLDING MACHINE

Filed Jan. 4, 1929 2 Sheets-Sheet 1

Fig. 1.

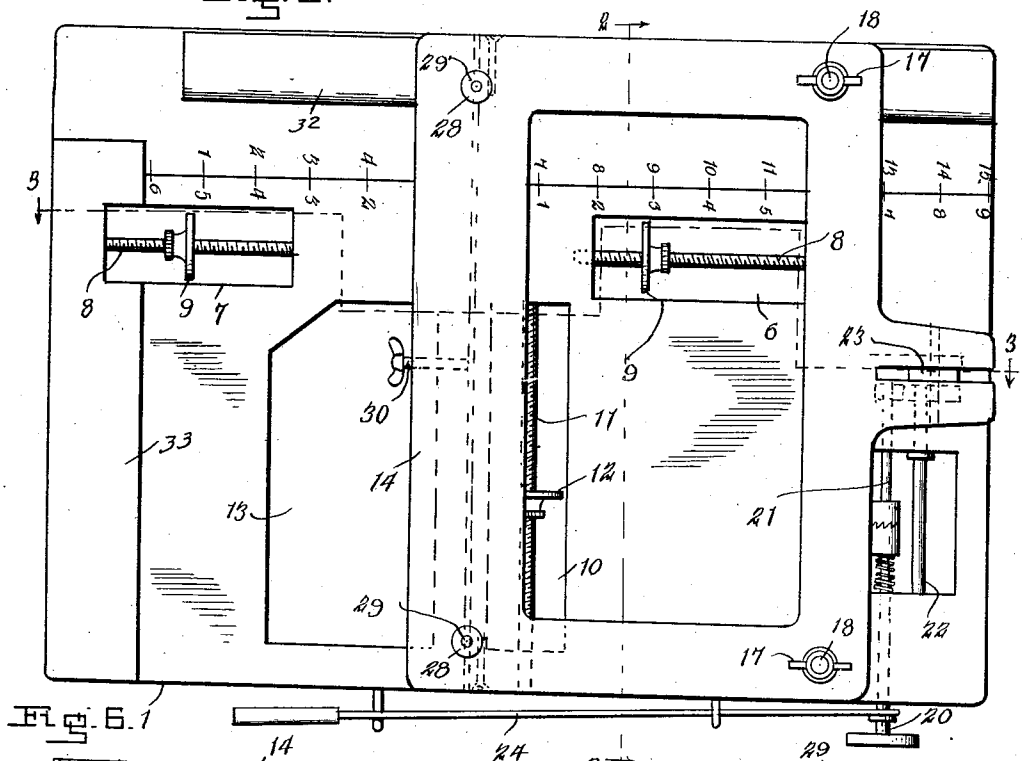


Fig. 6.

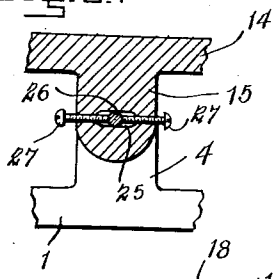


Fig. 7.

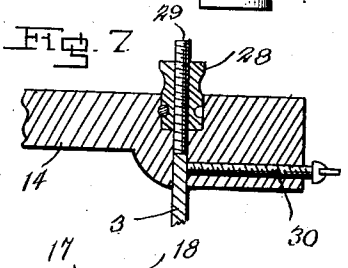
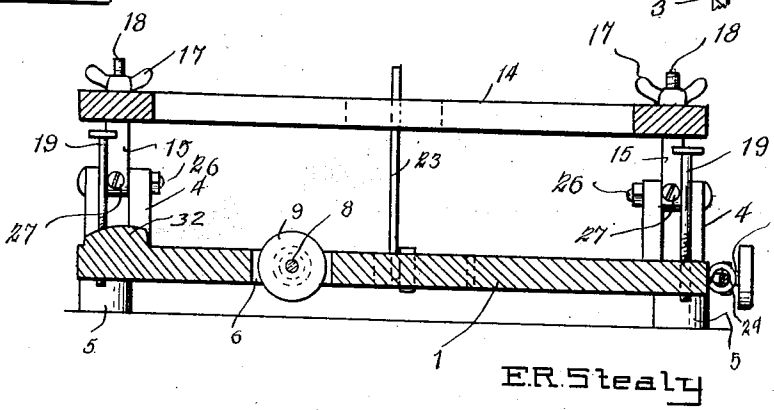


Fig. 2



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Fig. 3.

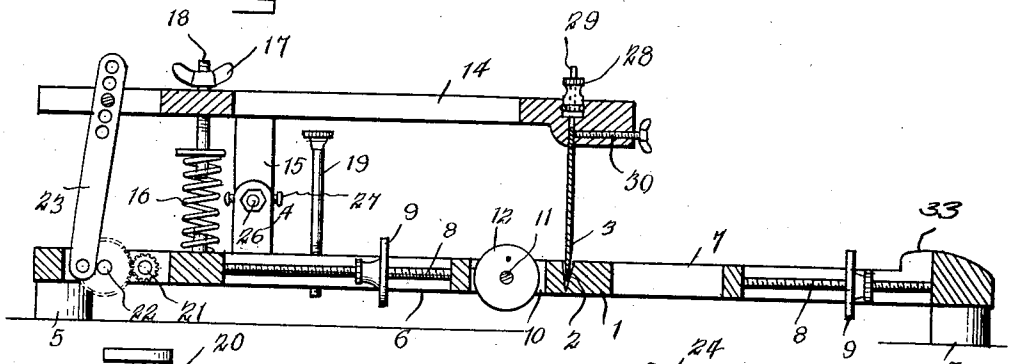


Fig 4

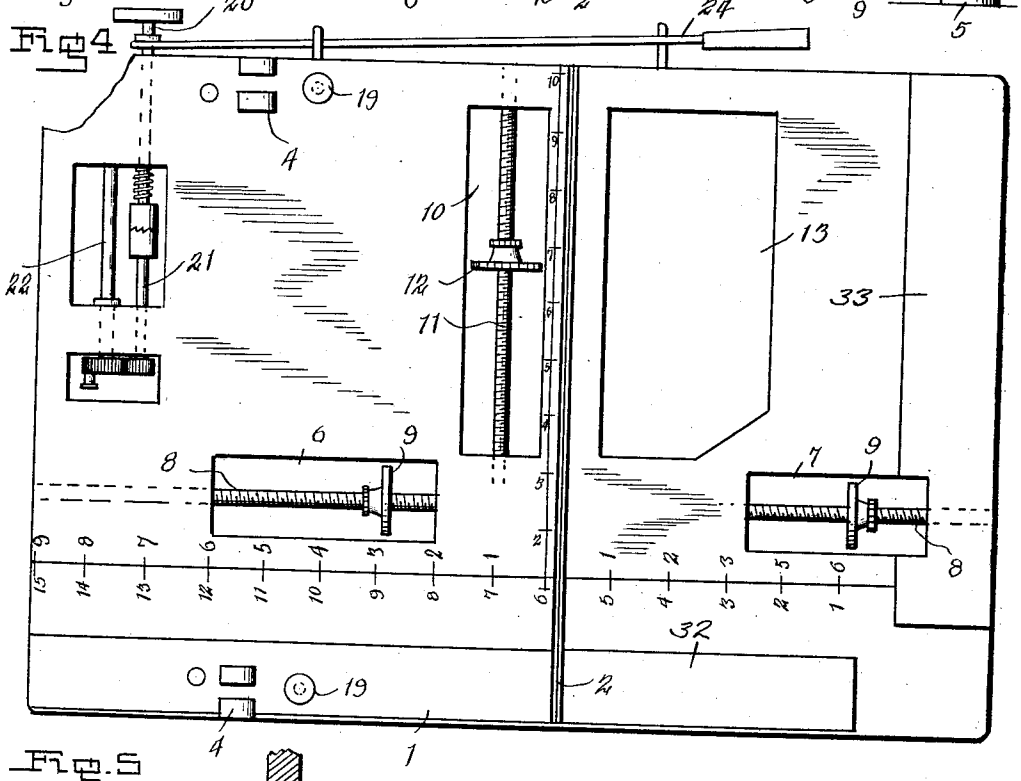
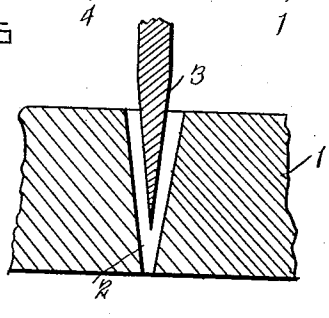


Fig. 5



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UNITED STATES PATENT OFFICE

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PAPER FOLDING MACHINE

Application filed January 4, 1929. Serial No. 330,164.

The invention provides a machine designed to neatly fold letters, circulars and periodicals in a rapid and convenient manner, and which is adjustable for different sizes or one or more sheets.

The invention relates to a machine which is adapted for office or shop use, and designed to be manually operated or power driven, depending upon the particular work for which it is devised.

While the drawing illustrates a preferred embodiment of the invention, it is to be understood that in adapting the means to meet specific needs and requirements, the design may be varied and such other changes in the minor details of construction may be resorted to within the scope of the invention as claimed, without departing from the spirit thereof.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and the drawings hereto attached, in which:—

Figure 1 is a top plan view of a paper folding machine embodying the invention.

Figure 2 is a transverse sectional view on the line 2—2 of Figure 1, looking in the direction designated by the arrows.

Figure 3 is a longitudinal sectional view on the line 3—3 of Figure 1, looking in the direction indicated by the arrows.

Figure 4 is a top plan view of the base, the member carrying the folding blade being omitted.

Figure 5 is an enlarged sectional view of a portion of the base in which the slot is formed for receiving the folding blade, a portion of the latter being shown.

Figure 6 is an enlarged detail view of the adjustable pivot connection between the base and the member carrying the blade.

Figure 7 is an enlarged detail view of the means for vertically adjusting the folding blade and securing it in the adjusted position.

Corresponding and like parts are referred to in the following description and designated in the several views of the drawing by like reference characters.

The numeral 1 denotes a base which may consist of a structure of any determinate formation according to the design and specific use for which the machine is devised. In the preferable construction the base structure 1 consists of a casting in which openings or depressions are formed for lightness. A slot or groove 2 is formed in the top side of the base 1 to coact with a blade 3 by which the folding is effected. The slot 2 may extend part way through the base, as indicated most clearly in Figure 3, or may be formed to pass entirely therethrough, as indicated in Figure 5. In the latter case the sheet when folded may be removed from a point below the base in any preferred way. The slot 2 tapers, its side walls converging downwardly, and the active portion of the folding blade 3 correspondingly tapers, as indicated most clearly in Figure 5 of the drawings. Studs 4 are formed with the base 1 adjacent opposite sides and at the rear end thereof. Feet 5 are formed with the base 1 to support the same a suitable distance above the surface upon which the machine may be placed.

Openings 6 and 7 are formed in the base 1 upon opposite sides of the groove or slot 2 and receive guides for the sheets to be folded. Each of these guides consists of a screw 8 and a gage 9 thereon consisting of a disk formed with a hub through which the screw 8 passes. Rotation of the gage 9 adjusts it towards or away from the folding mechanism. An opening 10 is formed in the base parallel with the slot or groove 2 and contains a paper guide consisting of a screw 11 and a gage 12 adjustable thereon and formed in a manner similar to the disk 9. An opening 13 is formed in the base 1 to lighten the structure and facilitate handling of the paper to be folded. The openings 10 and 13 are upon opposite sides of the folding mechanism.

A member 14 is pivotally mounted upon the base 1, and in the preferable construction consists of a casting formed with studs 15 which are pivotally connected to the studs 4. The folding blade 3 is adjustably connected with the member 14 whereby provision is had for proper assemblage of the parts. Con-

tractile springs 16 connect the member 14 with the base 1 and normally hold the folding blade 3 elevated so that the paper to be folded may be placed in position upon the base.

The tension of the springs 16 may be regulated by thumb nuts 17 mounted upon threaded stems 18 connected with the springs 16.

The downward movement of the folding blade 3 is limited by stops 19 which are adjustably connected with the base 1 and engage the member 14 forwardly of its pivotal connection with the base. The stop 19 consists of screws threaded into openings formed in the base 1.

The machine is adapted for office or shop use and may be operated by hand, foot, or power. When operated by hand the forward portion of the member 14 is depressed by pressure of the hand exerted thereon. When operated by foot a treadle, not shown, may be connected to the rear portion of the member 14 or to any convenient part to admit of lowering the folding blade by pressure of the foot. When the machine is designed to be power driven a suitable shaft 20 is provided and is adapted to be clutched to a shaft 21. A shaft 22 is geared to the shaft 21 and a pitman 23 adjustably connects a crank pin associated with the shaft 22 with a rear extension of the member 14. A lever 24 provides convenient means for throwing the power driven shaft 20 into and out of gear with the shaft 21 whereby provision is had for controlling the movement of the member 14.

The paper to be folded whether letter sheets, circulars or periodicals is placed upon the base 1 in proper position which is determined by means of the several paper guides and when the member 14 is operated to lower the blade 3 the paper is formed with a sharp crease which determines the fold. One or more sheets may be folded at the same time depending upon the thickness of the paper. The tapered or wedge formation of the active end of the blade 3 and the cooperating slot or groove 2 accommodates the machine to one or more sheets to be folded at a single operation of the member 14, as will be readily comprehended.

To admit of proper adjustment of the folding blade 3 with reference to the cooperating groove 2 provision is had for movement thereof. This is accomplished by making the openings 25 in the studs 15 elongated to receive the pivots 26. Set screws 27 threaded in openings formed in opposite sides of the studs 15 receive the pivots 26 between their inner ends. By backing one of the screws 27 and advancing the opposite screw the pivots 26 may be adjusted to aline the blade 3 to the groove 2. Nuts 28 connected by a swivel to the member 14 engage threaded stems 29 of the folding blade 3 and admit of vertical adjustment thereof. A clamp screw 30 threaded into the forward end of the member 14 secures the blade in the adjusted position.

Two guides 32 and 33 are provided and are fixed. The guide 32 is disposed adjacent a side of the base 1 and extends at a right angle to the slot structure 2. The guide 33 parallels the slot 2 and is located a distance therefrom adjacent the forward end of the base 1. Scale graduations appear on the base adjacent to and parallel with the slot 2, as shown most clearly in Fig. 4 of the drawings. Other scale graduations are provided on the base and parallel the side guide 32. These scales preclude the use of a separate ruler which is not always at hand and enable convenient adjustment of the guides 9 and 12. The bottom of certain size sheets is placed against the guide 33 and the side against the guide 32. The adjustable guides 9 and 12 are advantageous in adapting the machine for folding sheets of different sizes.

Having thus described the invention, I claim:—

1. An appliance of the class described, a folding blade having a tapering sharp lower edge, a cooperating tapering slot structure, a paper guide near one end of the slot structure running at right angles with the slot, an adjustable guide near opposite end of slot adjustable parallel with the slot, an adjustable guide at each side of the slot individually adjustable toward and from the slot, means for adjusting the blade so that its lower edge will be parallel with the slot, and means for lowering the blade to force the material to be folded into the slot thereby forming a clear cut sharp fold, and again raising said blade to release the folded material from said slot.

2. An appliance of the class described, a folding blade having a thin tapering lower edge, a cooperating slot structure having its walls parallel with the tapering portion of the folding blade, means for adjusting said blade so that its lower edge will be parallel with the slot, means for lowering the blade to force paper or other material into the slot, and again automatically raising the blade to original position above the slot structure.

3. An appliance of the class described having a folding blade, a cooperating opening in a base plate, a guide running at right angles to the opening in said base plate, a guide near the opposite end of the opening in base plate adjustable parallel with the opening in said base plate, an independent adjustable guide on each side of the base plate opening, each guide being independently adjustable toward and from said base plate opening, means for lowering and raising said blade to form a fold and release said folded material when placed over the opening in said base plate.

4. An appliance for folding letters, circulars, and the like, a folding blade having a tapering lower edge, a tapering cooperating slot structure, a paper guide near one end of the slot structure running at right angles with said slot, another paper guide placed anteriorly to the slot structure parallel with the same, a depression or opening in base plate between this paper guide and the slot, an adjustable paper guide adjacent to the slot structure adjustable parallel with same, an adjustable guide on each side of the slot structure individually adjustable from and toward the slot, means for adjusting the folding blade so that its lower edge will be parallel with the slot structure, and means for lowering the folding blade to force the material to be folded into the slot, and again raising said folding blade to release the folded material from said slot structure.

In testimony whereof I affix my signature.

ELZA R. STEALY. [L. S.]