June 22, 1937. V. P. CLEAR 2,084,432

ENLARGING EASEL

Filed Feb. 8, 1937

Fig. 1

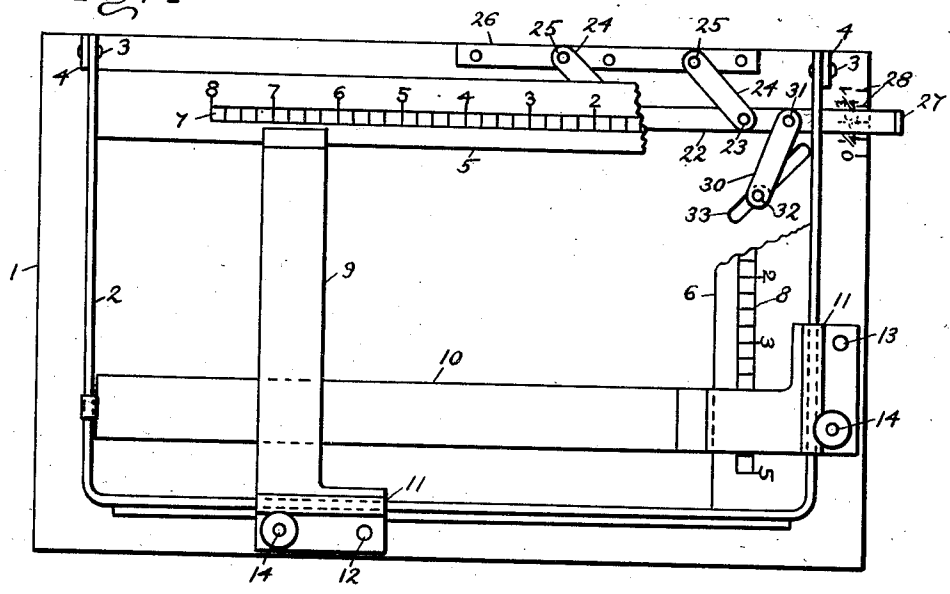



Fig. 2

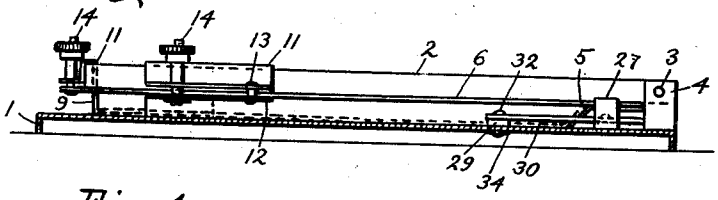



Fig. 3

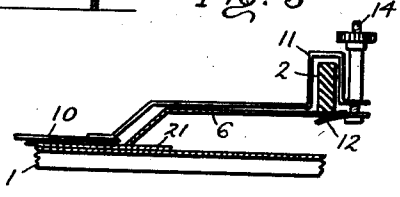



Fig. 4

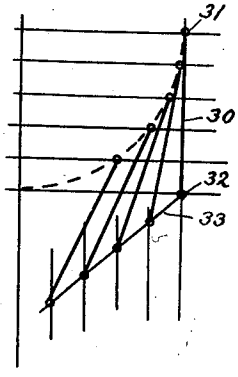
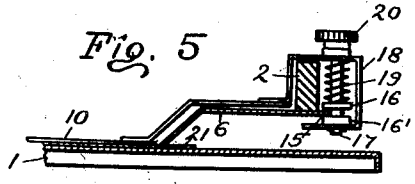



Fig. 5




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## ENLARGING EASEL

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Application February 8, 1937, Serial No. 124,583

4 Claims. (Cl. 88—24)

My invention relates to enlarging easels and has particular reference to easels for enlarging photographic pictures.

The object of my invention is to provide an easel which can be adjusted to a desired size of a rectangular opening for a picture, masking the margins so as to leave them blank. For this purpose I provide two wide bands slidably supported on the frame of the easel and provided with screws for tightening the bands in a desired position, the screws being provided with heads which also serve as convenient handles for moving the bands. The bands are fitted so that they retain their alignment at right angles to each other in all positions, and at right angles to stationary bands completing the rectangle forming a mask for a picture.

Another object of my invention is to provide micrometric screws for exact adjustment of the positions of the movable bands, the screws having a frictional engagement with the frame so that the bands can be moved more or less rapidly to their approximate positions, to be finally adjusted by turning the micrometric screws.

Another object of my invention is to provide means to determine the desired width of margin on the paper. For this purpose I provide a bar pivotally supported on two parallel links and having a handle for its manual adjustment, the bar retaining its parallel alignment with the edge of the frame because of the parallel links. This bar forms a stop for the edge of paper which is placed on the base of the device for printing. The other edge of the paper, at right angles to the first edge, is held by a roller on a link, one end of which is pivoted to the bar and the other end slides in a guiding slot in the base. In a preferred arrangement the slot is provided at such an angle to the bar that the roller advances in a direction at right angles to the movement of the bar and for the same distances.

My invention is more fully described in the accompanying specification and drawing in which—

Fig. 1 is a plan view of my easel with parts of the masking members broken to show the mechanism inside.

Fig. 2 is an end view of the same.

Fig. 3 is a detail view of a clamping device for movable mask bands.

Fig. 4 is a diagram showing the arrangement of margin determining links.

Fig. 5 is a modified construction of a clamping device for the mask bands.

My easel consists of a base 1 preferably made of a light metal such as aluminum alloy. The base is placed under an enlarging camera (not shown) and receives a picture to be enlarged, so that for convenience I prefer to have the upper surface of the base finished in dull white or natural aluminum color, the base serving as a projecting screen to ascertain the correct setting of the camera. The base has a U-shaped frame 2 pivoted at 3 to brackets 4 on the frame. The frame has masking members 5 and 6 at right angles to each other and provided with scales 7 and 8, indicating the length of each side. The scales are used for setting movable mask bands 9 and 10. The members 5 and 6 are bent down so as to press by their edges against the surface of the base thereby clamping a sheet of paper thereon. The bands are also made to press against the base when the frame 2 is lowered down, so that the paper is pressed down on all four sides. The bands 9 and 10 are supported on brackets 11 slidably fitted on the sides of the frame 2. Clamping plates 12 are supported on the brackets by loose pins 13 and by clamping screws 14.

A modified construction of a clamp for the masking member is shown in Fig. 5. The masking member 6 has an extension 15 engaged by friction wheels 16 and 16' on a shaft 17 journaled in the sides of a bracket 18 supported by a masking band 10. The lower wheel is fastened on the shaft, the upper being slidably fitted and pressed by a spring 19. A thumbhead 20 is provided on the exposed end of the shaft. By turning the thumbhead 20 the wheels 16 and 16' are turned, causing the bracket to move along the edge 15 for very accurate adjustments of the position of the bands 9 and 10. For preliminary setting the bracket is simply pushed along the frame 2, the wheels 16 and 16' being then turned by the movement of the bracket. The upper wheel 16 is mounted nonrotatively, as for instance, on a key, or by making the portion of the shaft square for a square hole in the wheel.

Photographic pictures are usually provided with white or blank margins, from one quarter to one inch in width. Such a margin must be placed under the masking members 5 and 6 and under the bands 9 and 10. In practice it is necessary to limit only two adjacent sides, the other sides being then trimmed by hand. For the purpose of determining the size of the margin on a sheet of paper 21 (see Figs. 3 and 5), a margin bar 22 is provided pivotally connected at 23 to two parallel links 24, the other ends of which are pivoted at 25, 25 to a stationary bar 26. A

handle **27** extends from the bar for adjusting its position with reference to a scale **28** indicating the size of the margin or depth to which a sheet of paper can be inserted under the masking member **5**. The adjacent side of the paper is provided with the same margin by placing the paper against a roller **29** on the end of an arm **30**. One end of the arm is pivoted at **31** to the bar **22**, the other end has a shaft **32** for the roller **29**.

The lower end of the shaft **32** slides in a slot **33** and has a retaining washer **34** at the end. The arm **30** is approximately equal in length to the radius of rotation of the point **31**, and the slot **33** is located at such an angle to the edge of the masking member that for each movement of the bar **22** the roller **29** moves to the left for the same distance. These movements are represented diagrammatically in Fig. 4, from which it will be seen that the slot **33** for given proportions represents practically a straight line, located at an angle approaching 45° to the edge of the masking member. Every time, therefore, when the bar **22** is moved ¼", for instance, the roller **29** also moves ¼", but to the left or at right angles to the movement of the bar **22**.

It is understood that my easel can be modified without departing from the spirit of my invention as set forth in the appended claims.

I claim as my invention:

1. An enlarging easel comprising a base, a frame hingedly supported on the base, masking members on the frame at right angles to each other and adapted to press a sheet of paper against the base, a member movably supported on the base and adapted to form a rest for one edge of the paper back of the edge of the corresponding masking member, means to manually adjust the position of the movable member for a desired margin, an arm pivotally connected with the movable member at one end, and means on the base for guiding the other end of the arm, said guiding means being adapted to advance the end of the arm at right angles to the movement of the movable member and for the same distance.

2. An enlarging easel comprising a base, a frame hingedly supported on the base, masking members on the frame at right angles to each other and adapted to press a sheet of paper against the base, a bar, means to movably support the bar on the base, the edge of the bar being adapted to retain its parallel alignment with the edge of the corresponding masking member, an arm pivotally connected at one end to the bar, a roller on the other end of the arm adapted to form a rest for one side of the paper, the other side of the paper resting against the bar, and means on the base to guide the roller so as to cause it to move equal distances with the bar but at right angles thereto.

3. An enlarging easel comprising a base, a frame hingedly supported on the base, masking members on the frame at right angles to each other and adapted to press a sheet of paper against the base, a bar movably supported on the base and adapted to be manually moved, the bar being adapted to form a rest for one edge of the paper thereby determining its margin under the edge of the corresponding masking member, an arm pivotally connected at one end to the bar, the other end of the arm being adapted to form a rest for the other side of the paper, and an extension on the arm, the base being provided with a guide for said extension, the guide being adapted to advance the end of the arm in direction at right angles to the direction of movement of the margin determining portion of the bar, the distances of movement of the end of the arm being equal to corresponding distances of movement of the margin determining portion of the bar.

4. An enlarging easel comprising a base, a frame rotatively supported on the base, masking members on the frame at right angles to each other adapted to press a sheet of paper against the base, a bar pivotally supported on parallel links on the base and being thereby adapted to move in parallel relation to the edge of the corresponding masking member, the bar being adapted to form a rest for one side of the paper back of the edge of the masking member, and an arm pivotally supported at one end on the bar, the other end having an extension, the base being provided with a guiding slot for the extension, the slot being substantially straight and at an angle to the edge of the masking member, the guided end of the arm forming a rest for the other side of the paper.

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