No. 832,967. PATENTED OCT. 9, 1906.

H. D. GRINNELL.

DRAWING BOARD.

APPLICATION FILED JAN. 19, 1906.

Fig. 1.

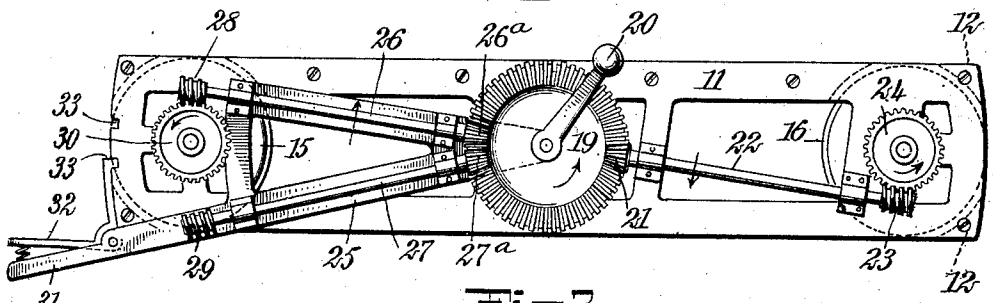



Fig. 2.

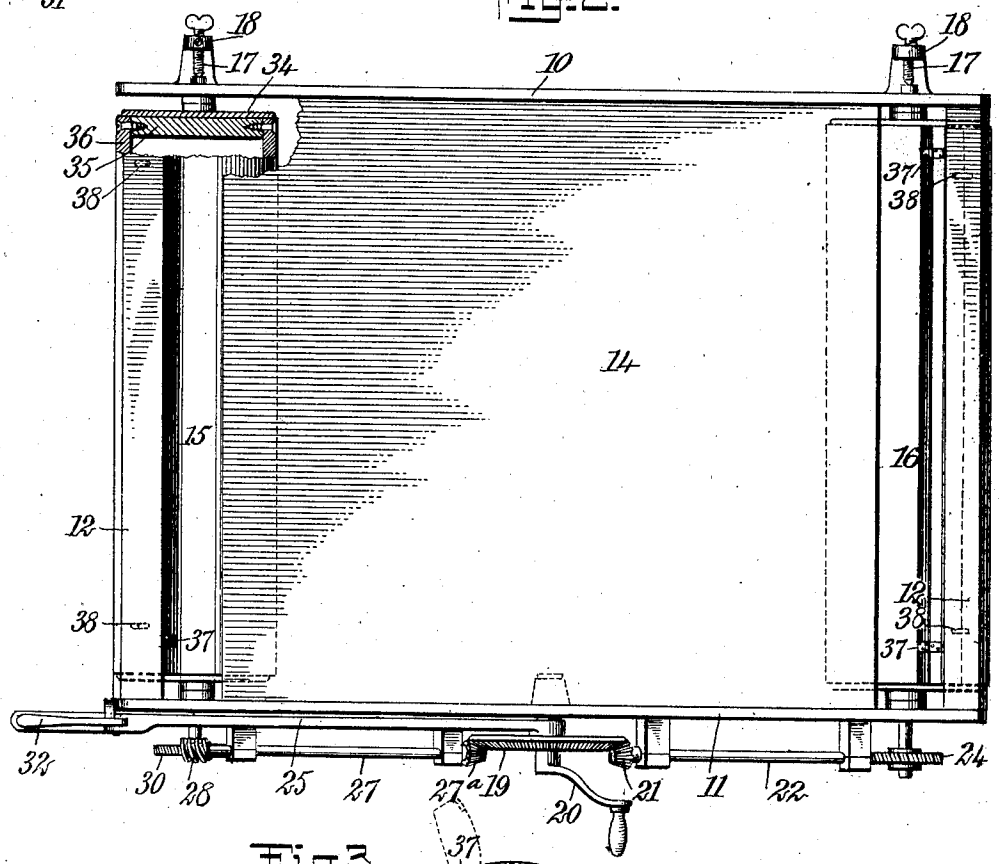
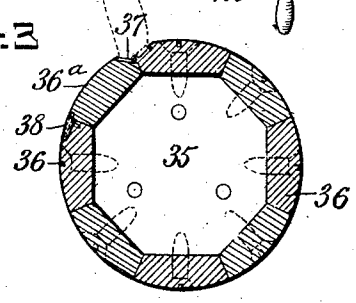



Fig. 3.




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# UNITED STATES PATENT OFFICE.

HAROLD D. GRINNELL, OF NEW YORK, N. Y.

## DRAWING-BOARD.

No. 832,967. Specification of Letters Patent. Patented Oct. 9, 1906.

Application filed January 19, 1906. Serial No. 296,797.

*To all whom it may concern:*

Be it known that I, HAROLD D. GRINNELL, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Drawing-Board, of which the following is a full, clear, and exact description.

The invention relates to a drawing-board useful in connection with illustrative work of all sorts, but especially useful in architectural drawing and illustration where large or panoramic views are frequently to be executed.

The object of the invention is primarily to provide means by which a long sheet or continued web of paper may be safely held in position convenient for drawing and any part of the web or sheet exposed at will. I attain this end by providing a frame or board proper having two drums on which the paper is wound, said drums being connected to certain peculiar devices by means of which they may be rotated simultaneously in the same or opposite directions, thus enabling the sheet to be moved over the board proper, and by turning the drums oppositely the sheet may be stretched firmly over the board.

The invention resides in certain special features of construction and combination of parts, all of which will be fully set forth hereinafter, and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, which illustrate, as an example, the preferred embodiment of my invention, in which—

Figure 1 is a rear view of the invention. Fig. 2 is a plan view with parts broken away, and Fig. 3 is a detail view showing the manner in which the drums are constructed.

The frame of the device comprises front side member 10 and a rear side member 11, which are rigidly connected at their corners by cleats or battens 12 and also connected by means of a table or board proper 14, said board extending across between the upper edges of the sections 10 and 11 and being firmly fastened thereto level with said edges, so that an ordinary T-square may be used over the board, according to the customary practice. Also, if desired, a scale or graduations may be marked along the upper edge of one or both of the frame members 10 and 11 for the convenience of the user. The cleats or battens 12 are spaced from the end edges of the board 14, leaving two transverse openings, (shown in Fig. 1,) and through these openings the surfaces of the drums 15 and 16 are exposed. Said drums have their journals mounted, respectively, in the frame-sections 10 and 11, and they are held by threaded center-pins 17, which operate in brackets 18, projecting from the frame member 10.

Mounted on the frame member 11, at the outer side thereof, is a bevel-gear 19, to which an operating-handle 20 is connected. Said gear has in mesh therewith a bevel-pinion 21, fastened on a shaft 22. This shaft extends toward one end of the board and has a worm 23 fastened thereto, which meshes with a worm-wheel 24, secured to the axis of the roller 16. Pivoted to swing around the center of a gear 19 is an auxiliary frame 25, and on this frame two shafts 26 and 27 are revolubly mounted. Said shafts carry worms 28 and 29, which lie on opposite sides of the worm-wheel 30, secured to the axis of the drum 15. Said worms 28 and 29 are sufficiently spaced from each other to avoid simultaneous engagement with the worm-wheel 30, and by rocking the auxiliary frame 25 around the said center of the gear 19 one or the other of the worms 28 and 29 will be engaged with the wheel 30.

31 indicates a handle which is attached to the auxiliary frame 25 to facilitate its operation, and said handle carries a spring-pawl 32, adapted to coact with the notches 33, formed in the frame-sections 11, and by means of which said auxiliary frame 25 may be held securely in either one of its two positions.

Paper is wound over the rolls 15 and 16 and passes out through the openings between the board 14 and battens or cleats 12, the web of paper passing over the top of the board 14, so that the work may be readily executed on the paper. When the parts are in the position shown in Fig. 1—to wit, with the worm 28 engaged with the wheel 30—by rotating the gear 19 the two drums will be driven in the same direction, thus swinging the paper toward one or the other end of the device, according to the direction in which the gear 19 is turning. In this manner the entire sheet or web of paper may be moved before the user, so that it may be inspected or drawings executed on any part thereof, as desired. When it is wished to stretch the paper over the board 14, the pawl 32 should be operated to release the auxiliary frame 25

and said frame swung up until the worm 29 engages the wheel 30, after which the pawl should be allowed to act, holding the auxiliary frame in its new position. Then by rotating the gear 19 the two drums will be driven in the opposite direction, and this will result in stretching the paper over the board with any tension desired.

The manner in which the drums are constructed is not essential to my invention, although I prefer to employ the method shown in Figs. 2 and 3. As there shown, each drum is provided with metallic head-plates 34, to the inner faces of which wooden sections 35 are secured, forming rabbets receiving the slats 36. These slats extend longitudinally of the drums and form the outer surface thereof. Said slats are constructed of wood matched together, as shown in Fig. 3. One of the slats (specifically the slat $36^a$ in Fig. 3) is connected to the slat adjacent by means of hinges 37, so that it may swing as shown by the full and broken lines in Fig. 3, and the free portion of the slat is adapted to be engaged by means of a bolt or catch 38 of any desired form. This movable slat is provided to enable fastening the end of the web of paper to the drum. To effect this, the slat is thrown to open position, as shown by the broken lines, and the paper introduced under the side, which is then thrown back and held fast by the latch 38. This clamps the end of the paper and firmly connects it with the drum. Both of the drums are provided with the hinged slats, facilitating the above-described operation.

Having thus described the preferred form of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a drawing-board, of opposite winding-drums supported by the board, a bevel-gear on said board, direct driving connection between said bevel-gear and one of said drums, and a reversing-gear connection between said bevel-gear and the other of said drums.

2. A drawing-board comprising two winding devices, and means connecting said devices for simultaneously turning them in the same direction, or for simultaneously turning them in opposite directions, for the purpose specified.

3. A drawing-board having two winding-drums, a worm-wheel in connection with each drum, worms meshed with the worm-wheels, a shaft on which each worm is carried, gears attached to said shafts, and a driving-gear meshed with the first-named gears.

4. A drawing-board having two winding devices, a gear having connection with one, a gear in connection with the other winding device, two gears located at opposite sides of the second-named gear, and movable to engage one or the other with said second-named gear, and means for driving the gears.

5. A drawing-board having two winding devices, means for turning one of said devices, a gear in connection with the other winding device, two additional gears adapted to mesh with opposite sides of the first-named gear, one of the additional gears engaging the first-named gear as the other gear is out of engagement therewith, and vice versa, and means for driving said additional gears.

6. A drawing-board comprising a frame or board proper, winding devices at opposite sides thereof, means for driving one of the winding devices, an auxiliary frame mounted to swing on the first-named frame, two gears carried by the auxiliary frame, means for driving said gears, and a gear in connection with the second winding device, the last-named gear being located between the two gears of the auxiliary frame whereby upon the movement of the frame one or the other of the gears thereof will engage the last-named gear to drive the second-named winding device in either direction.

7. A drawing-board comprising a frame or board proper, winding devices at opposite sides thereof, means for driving one of the winding devices, an auxiliary frame mounted to swing on the first-named frame, two gears carried by the auxiliary frame, means for driving said gears, a gear in connection with the second winding device, the last-named gear being located between the two gears of the auxiliary frame whereby upon the movement of the frame one or the other of the gears thereof will engage the last-named gear to drive the second-named winding device in either direction, and means for adjustably holding the auxiliary frame.

8. A drawing-board comprising winding devices, a driving-gear, an auxiliary frame arranged to swing around the center thereof, shafts mounted on the auxiliary frame, the said shafts having connection with one of the winding devices to rotate it, and gears attached to the shafts and engaging the driving-gear.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HAROLD D. GRINNELL.

Witnesses:

ISAAC B. OWENS,

EVERARD B. MARSHALL.